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•DISCOVER THE GIANTS OF THE PREHISTORIC WORLD•

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SAURORNITHOIDES

Keen-eyed *Saurornithoides* was one of the cleverest dinosaurs.

An agile hunter, *Saurornithoides* used its high-speed reactions to track down small prey. A lethal combination of intelligence, sharp eyes and fleetness of foot gave *Saurornithoides* a huge advantage over its victims. As soon as it spotted its prey, the nimble predator leapt into action and the chase was on.

SIZE WISE

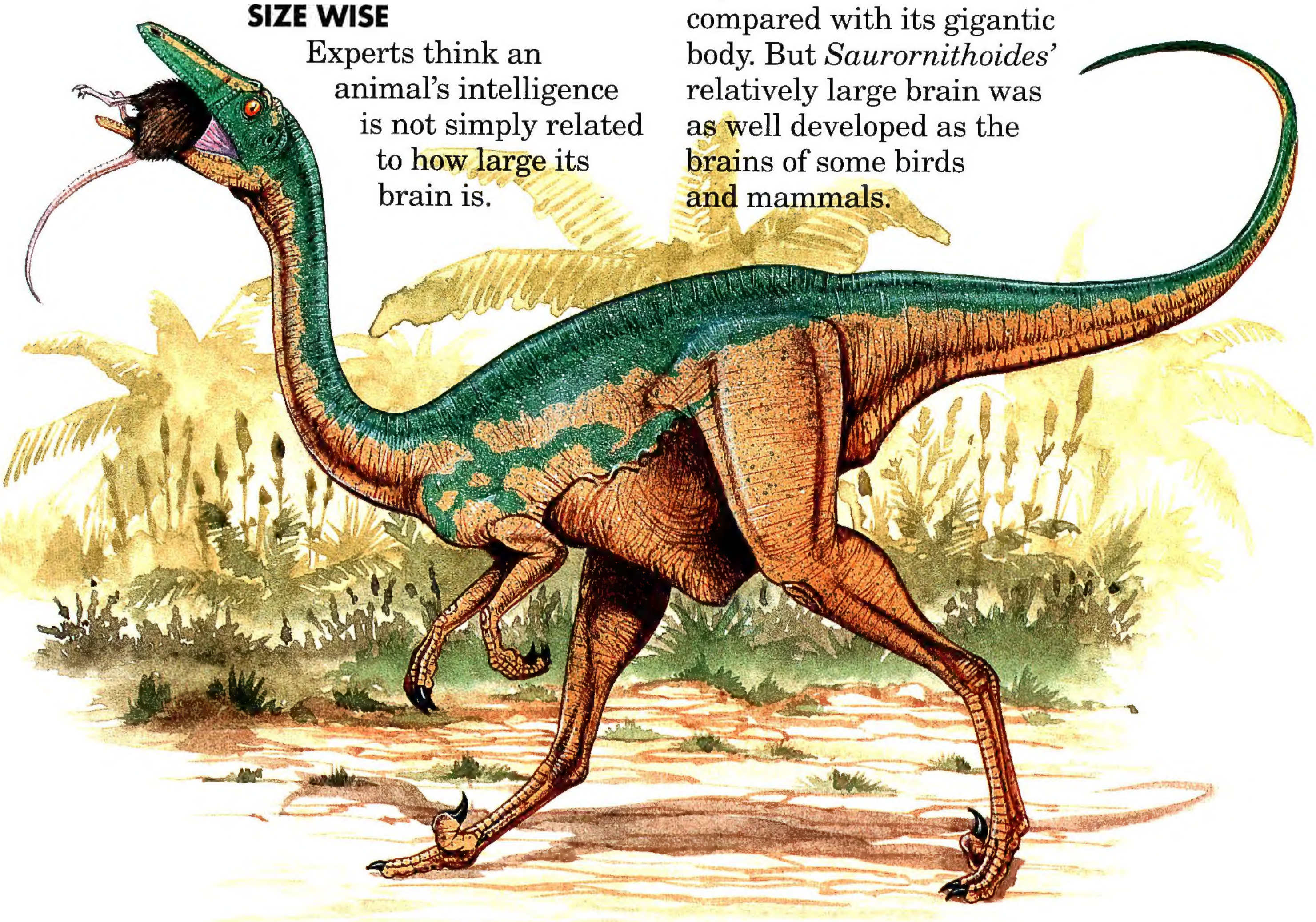
Experts think an animal's intelligence is not simply related to how large its brain is.

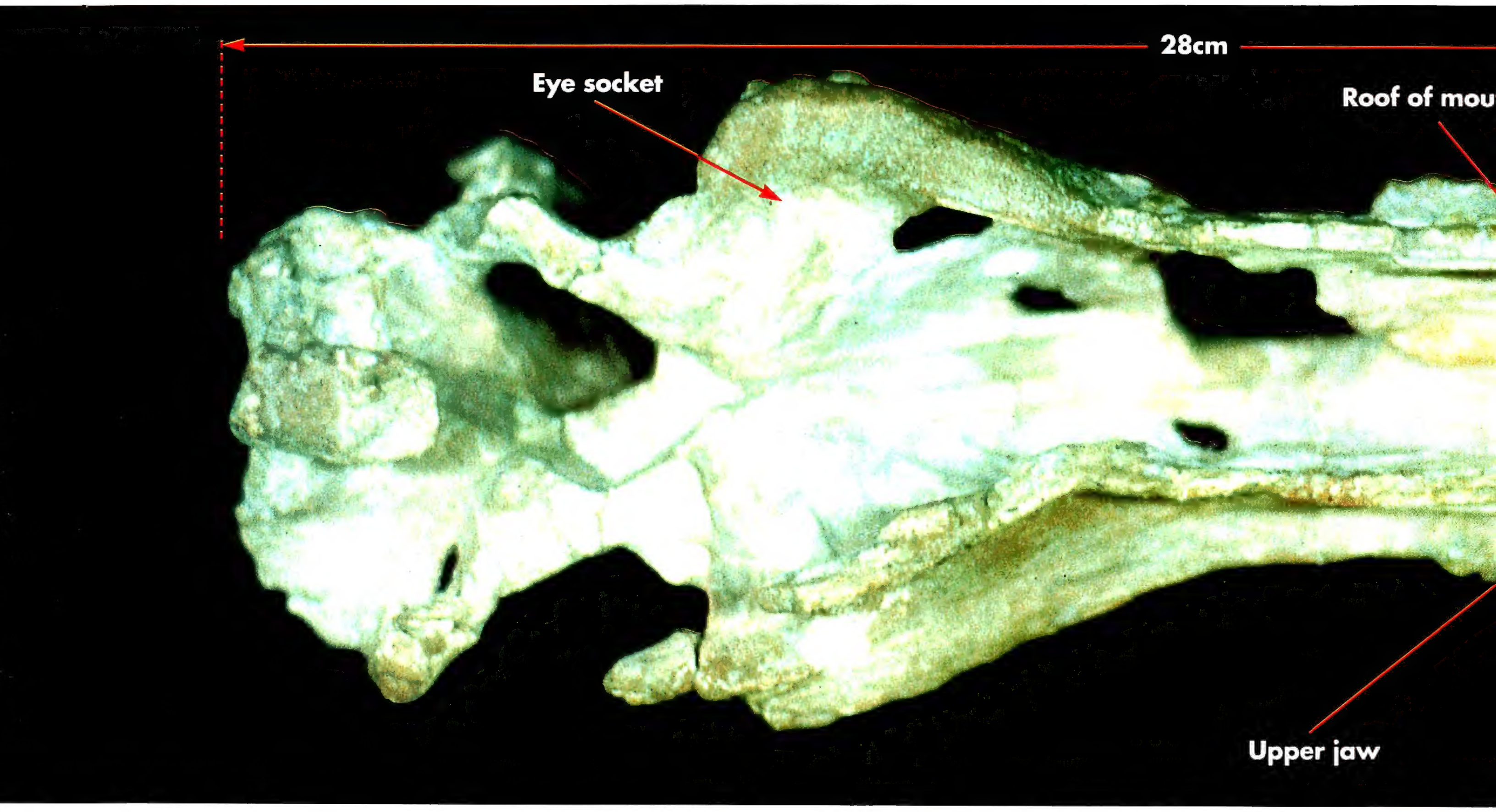
SMALL BUT SMART

It is important to compare the size of an animal's brain with the rest of its body. Compared with its body weight, *Saurornithoides'* brain was very large. This meant *Saurornithoides* could co-ordinate its senses and body movements much faster than most other dinosaurs could.

BIRD BRAIN

The brain of a huge sauropod like *Diplodocus* was minute when compared with its gigantic body. But *Saurornithoides'* relatively large brain was as well developed as the brains of some birds and mammals.





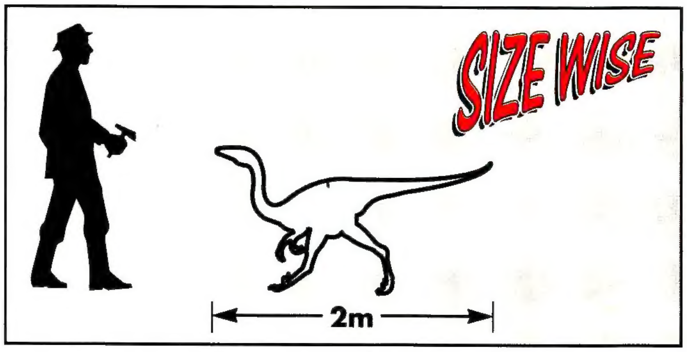
SLENDER JAWS
Saurornithoides had a long, low head rather like *Velociraptor's*. Its narrow, slender jaws were about as long as an adult human's hands. They were lined with many small, sharp teeth which were quite straight at the front and slightly curved near the back of the jaws.

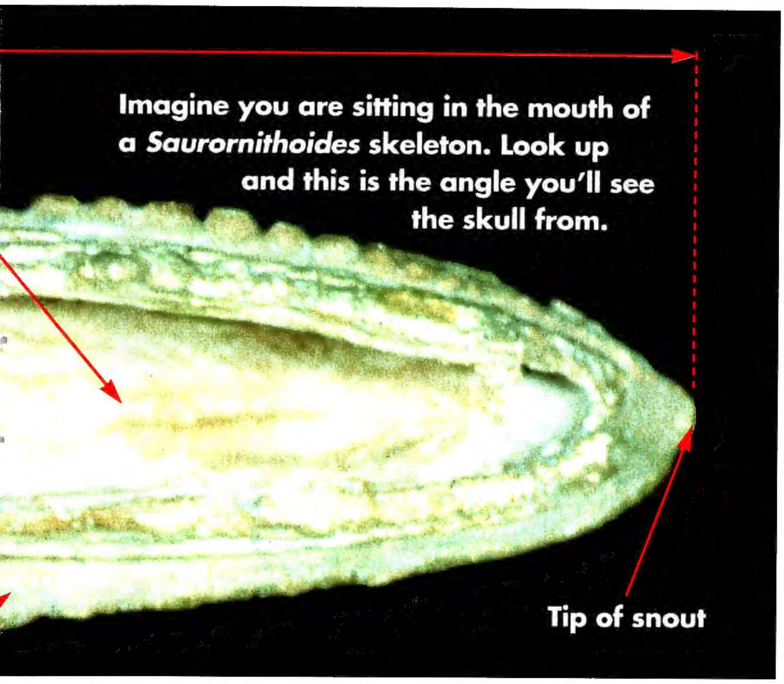
TWILIGHT TERROR
Sharp eyesight is important for any hunting animal and *Saurornithoides* could see very well. Its large, saucer-shaped eyes worked like built-in binoculars, enabling it to spot faraway prey.

LIGHT WORK
Experts think *Saurornithoides* may have been able to see in semi-darkness. As dusk fell, small nocturnal creatures could creep undetected past most predators but they were not safe from *Saurornithoides*.

MONSTER FACTS

- **NAME:** *Saurornithoides* (saw-raw-ni-thoy-deez) means 'bird-like reptile'
- **GROUP:** dinosaur
- **SIZE:** up to 2m long
- **FOOD:** meat, especially small mammals and lizards
- **LIVED:** about 80 million years ago, in the Late Cretaceous Period in Mongolia




Imagine you are sitting in the mouth of a *Saurornithoides* skeleton. Look up and this is the angle you'll see the skull from.

DAINTY MOVER

Saurornithoides was about as long as a cheetah. As it ran daintily on its two back legs, *Saurornithoides*' lightweight body was balanced by a long, tapering tail which it held out stiffly behind. This left its hands free to grasp its prey.

CURVED CLAW

Like 'terrible-clawed' *Deinonychus, Saurornithoides* had a special weapon on each foot. It had a large, curved claw on its second toe which cut like a slashing blade. When it ran, *Saurornithoides* held its claw above the ground to stop it from getting blunt.

Like today's fox (right), *Saurornithoides* (far right) could hunt in semi-darkness.

Is it true that scientists sometimes mistake dinosaur fossils for bird ones?

Yes. Many dinosaurs have bird-like features, such as long, clawed fingers and slim necks, so it's not surprising that mistakes can be made! When *Saurornithoides* was first discovered in 1923, experts thought it was an early toothed bird because its skull had a long muzzle like some birds.

FAMILY BUSINESS

Saurornithoides was first found in the Gobi Desert, Mongolia, in 1923. For a long time, experts thought it belonged to the same family as *Dromaeosaurus*. Later finds in the 1970s showed differences in the skull and teeth which suggested it belonged to another family. Experts now think *Saurornithoides* is a troodontid as it is so like *Troodon*.

GLYPTODON

Prehistoric mammal *Glyptodon* had a huge, dome-shaped shell on its back.

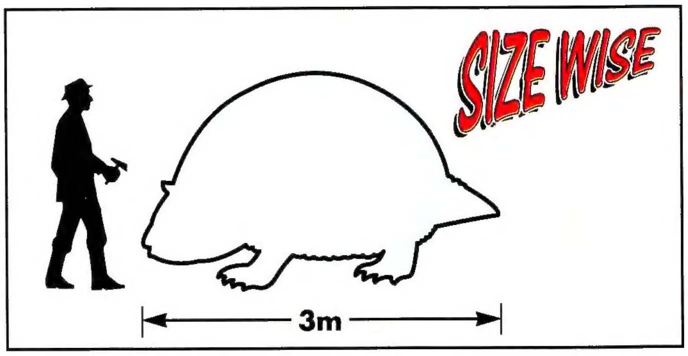
Like its modern relative the giant armadillo, *Glyptodon* needed a shell to protect itself from predators. Two million years ago, big sabre-toothed cats like *Smilodon* were on the prowl. *Glyptodon's* shell provided excellent protection from *Smilodon's* sharp teeth and claws.

HEAD AND TAIL

Glyptodon had other armour as well as its shell. Its short head had a bony skull to shield its small brain. And it may have used its heavily-armoured tail club as a weapon, to swing at enemies if they came too near.

HAIRY MAMMAL

Because *Glyptodon* was a mammal, it probably had whiskers and a covering of hair for warmth. At the end of its short legs, it had five-toed feet with hoof-like claws.

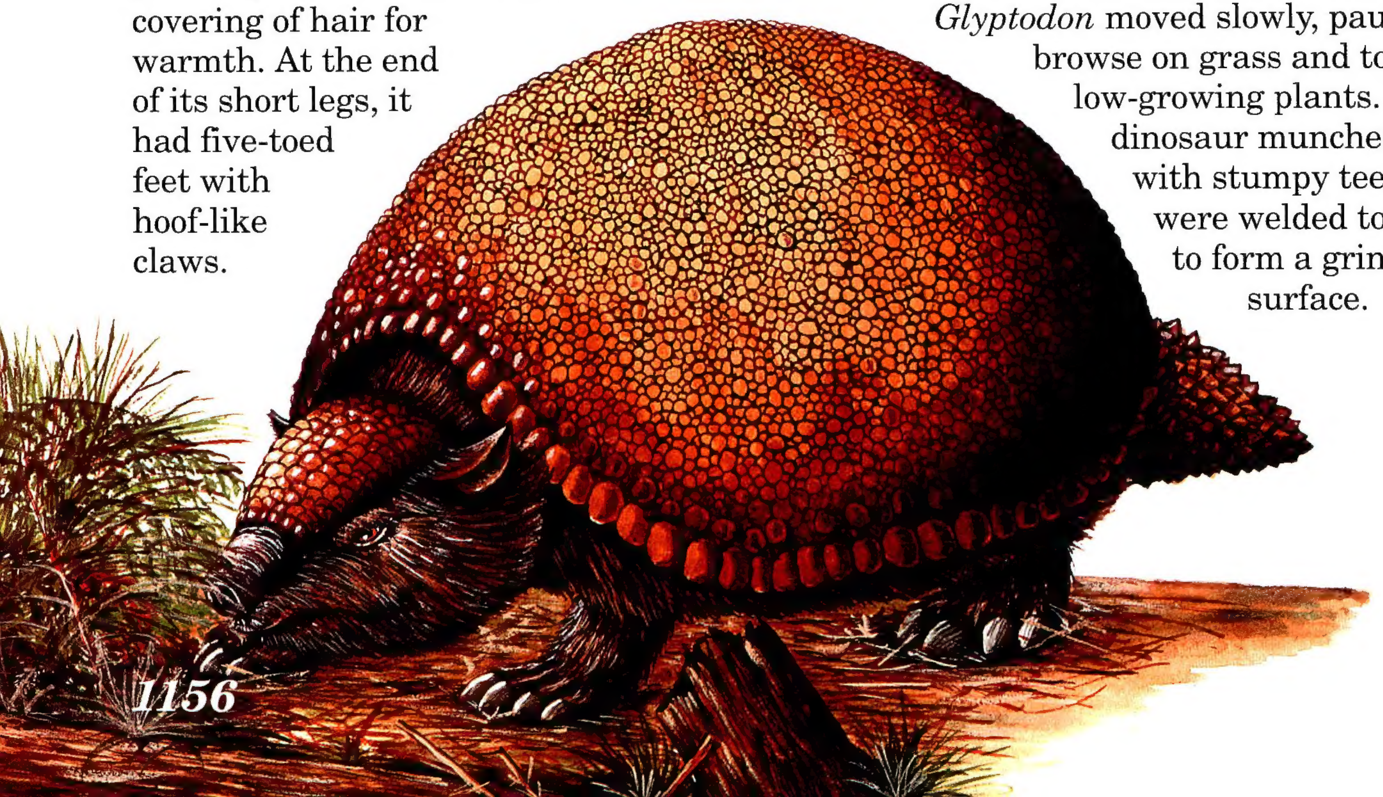


MONSTER FACTS

- **NAME:** *Glyptodon* (glip-toh-don) means 'carved tooth'
- **GROUP:** mammal
- **SIZE:** up to 3m long
- **FOOD:** grass and tough plants
- **LIVED:** between 2 million and 10,000 years ago in the Pleistocene Epoch in Argentina and Brazil, South America

SLOW MOVER

Glyptodon moved slowly, pausing to browse on grass and tough, low-growing plants. The dinosaur munched its food with stumpy teeth that were welded together to form a grinding surface.



PROSAUROLOPHUS

***Prosaurolophus* was about twice the height of a man.**

Duckbilled *Prosaurolophus* was one of the many hadrosaurs found in the harsh landscape of Canada's 'badlands'. Seventy million years ago, these deserted plains were covered with subtropical plants. Herbivores like *Prosaurolophus* feasted on the succulent shrubs.

SMALL CREST

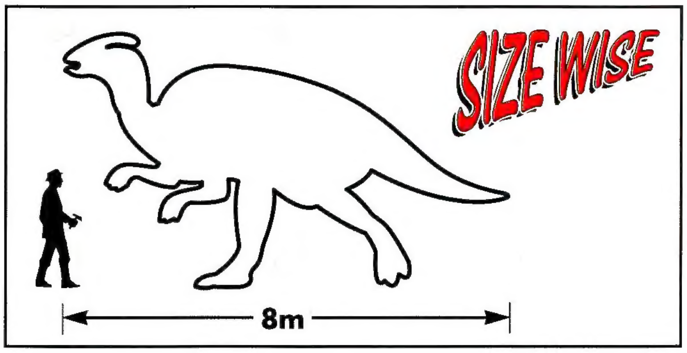
Unlike some of its relatives, *Prosaurolophus* only had a small crest. In the rocks where *Prosaurolophus* was discovered, experts have found at least six other hadrosaurs. Some had remarkable, tubular crests, while others had bumps above their snouts.

INSTANT RECOGNITION

Crests and bumps made it easy for these dinosaurs to recognise others of their own species. Even small-crested *Prosaurolophus* was easy to spot.

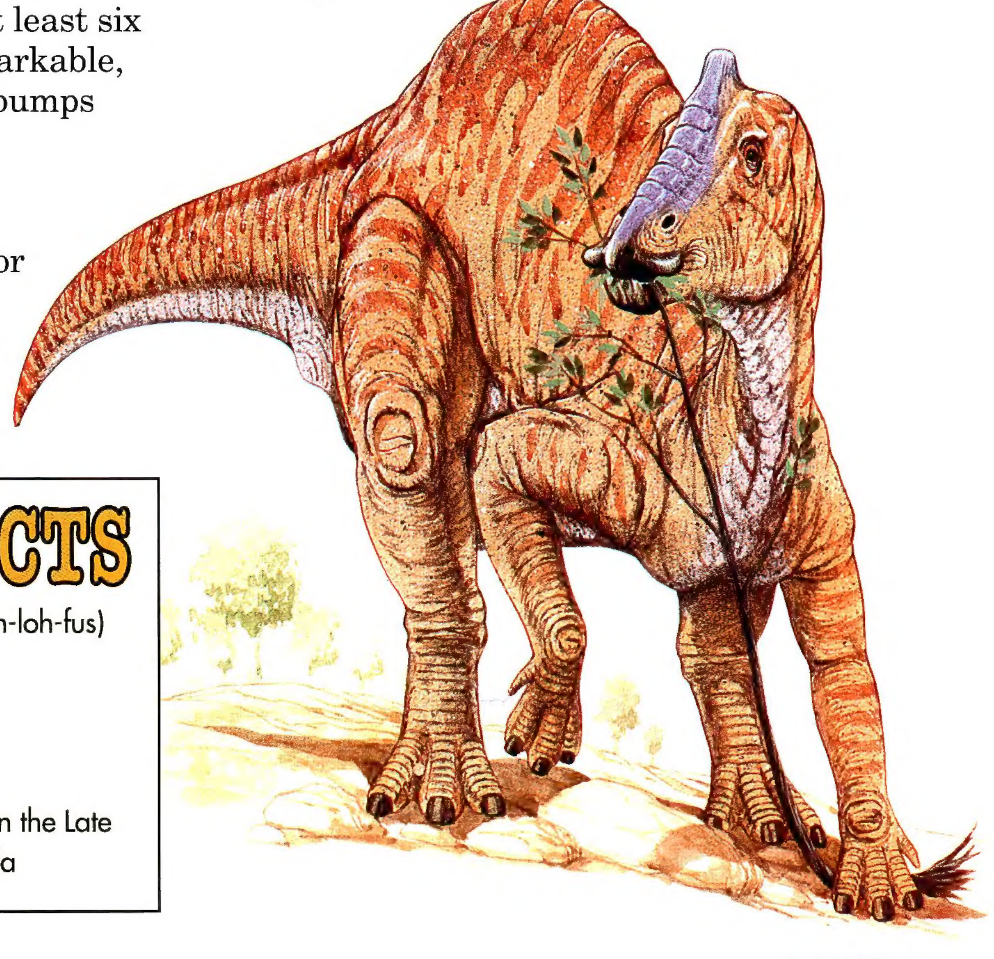
MONSTER FACTS

- **NAME:** *Prosaurolophus* (pro-sore-oh-loh-fus) means 'before *Saurolophus*'
- **GROUP:** dinosaur
- **SIZE:** up to 8m long
- **FOOD:** plants
- **LIVED:** about 70 million years ago in the Late Cretaceous Period in Alberta, Canada



HIGH OR LOW

Prosaurolophus had a broad bill and could sweep up large mouthfuls of tough vegetation, grinding it with its teeth. It could reach the needles on tall conifers by rearing up on its back legs.



The early birds

Birds have been around for almost 150 million years – much longer than humans.

The earliest-known bird is *Archaeopteryx* and it lived during the Jurassic Period. It had some reptile-like features, such as teeth in its beak-like jaws, and lots of tail bones. But it also had feathers! Millions of years after *Archaeopteryx*, but while dinosaurs still stalked the land, many other birds roamed the Earth.

SETTLING INTO THE SILT

During the Cretaceous Period there were water birds, such as tern-like *Ichthyornis,* as well as *Hesperornis,* which resembled a modern 'diver' bird like the great crested grebe. There were probably land-dwelling birds too, but the bones of water birds were more likely to be preserved. If a water bird died, its bones settled in soft mud or silt.

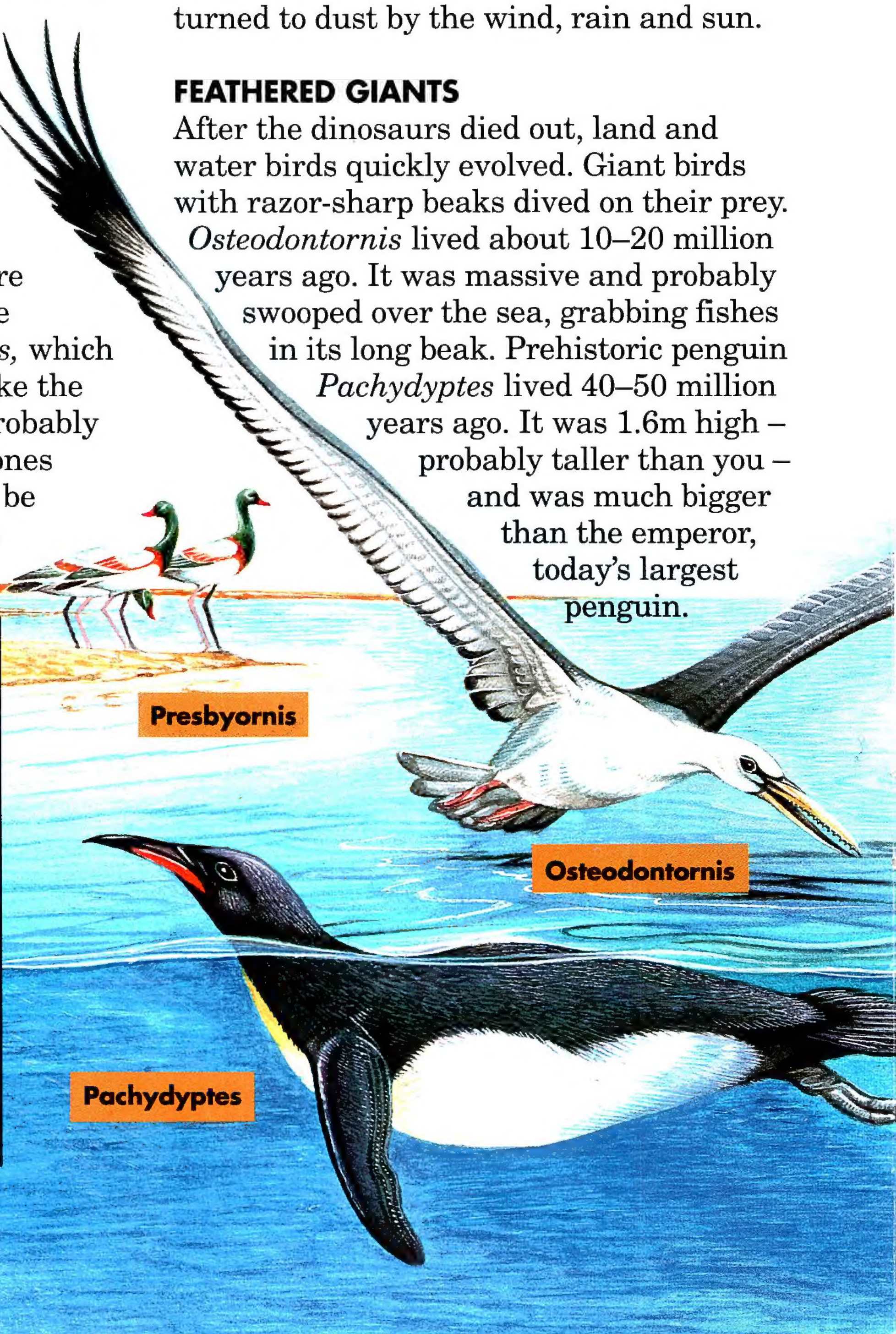
Prehistoric bird *Osteodontornis* was like a giant version of today's gannets, pictured here.

BETTER FOSSILS

Because the bones of the water bird were buried, they became fossils. On land, however, the delicate bones of many birds were soon crushed by scavengers, or turned to dust by the wind, rain and sun.

FEATHERED GIANTS

After the dinosaurs died out, land and water birds quickly evolved. Giant birds with razor-sharp beaks dived on their prey. *Osteodontornis* lived about 10–20 million years ago. It was massive and probably swooped over the sea, grabbing fishes in its long beak. Prehistoric penguin *Pachydyptes* lived 40–50 million years ago. It was 1.6m high – probably taller than you – and was much bigger than the emperor, today's largest penguin.

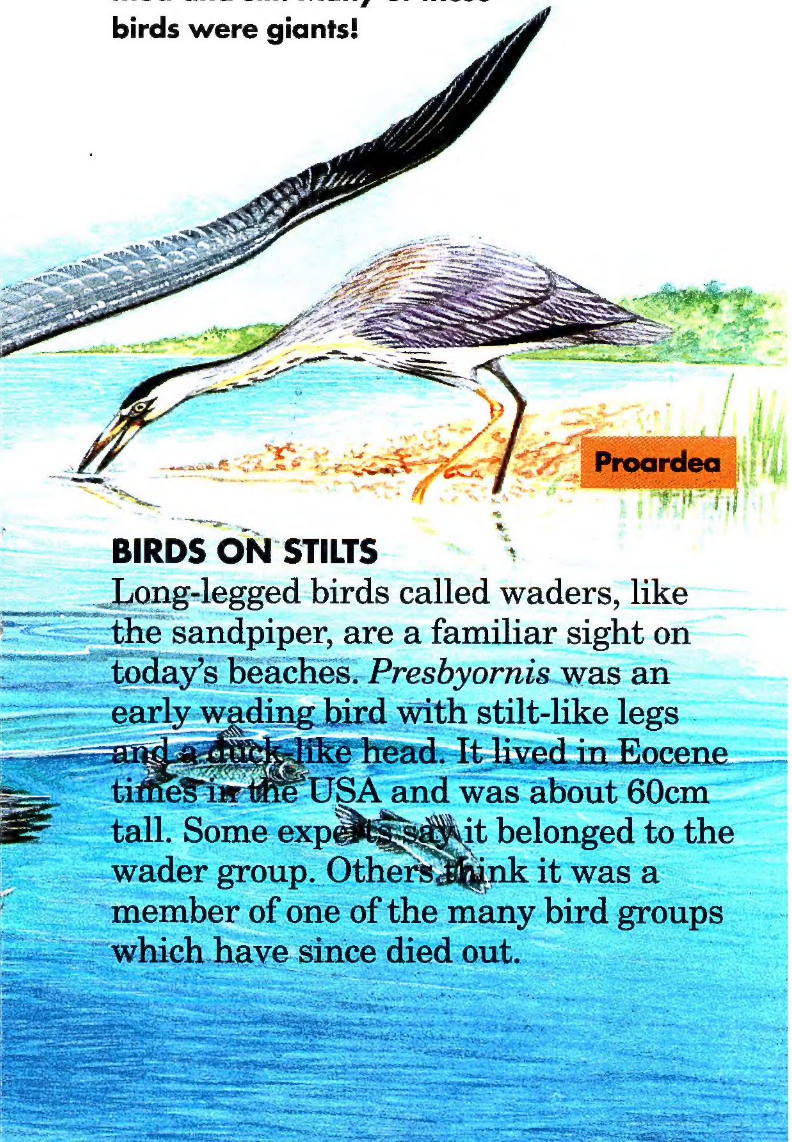


What is? A BIRD

There are nearly 9,000 kinds, or species, of birds in the world today. Birds are easy to spot because they all share the following features:

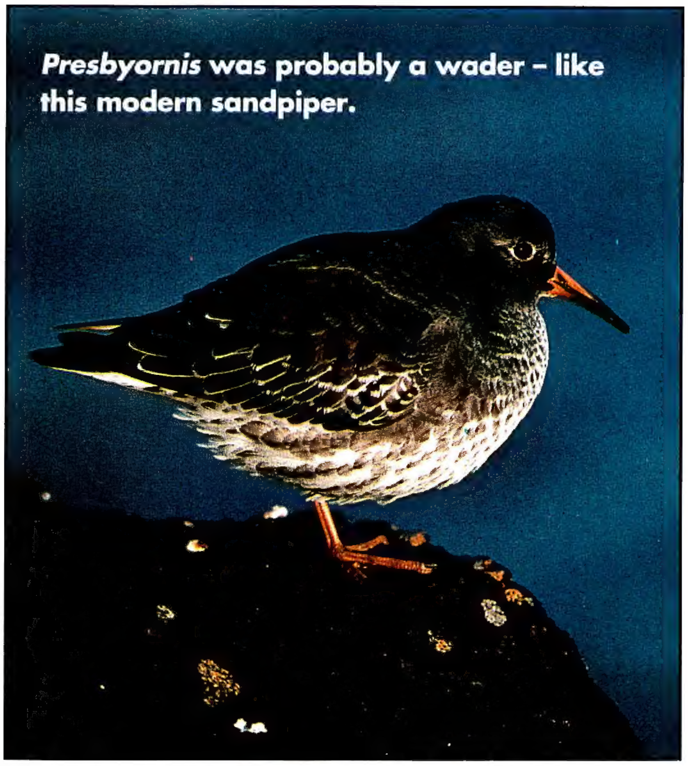
- a covering of feathers
- a beak instead of a mouth
- wings instead of front limbs
- two scaly back legs
- clawed feet
- all baby birds hatch from eggs laid by the mother

After the Age of the Dinosaurs, prehistoric birds, like those pictured below, flourished. We know most about the water birds because their fossils have been found in mud and silt. Many of these birds were giants!



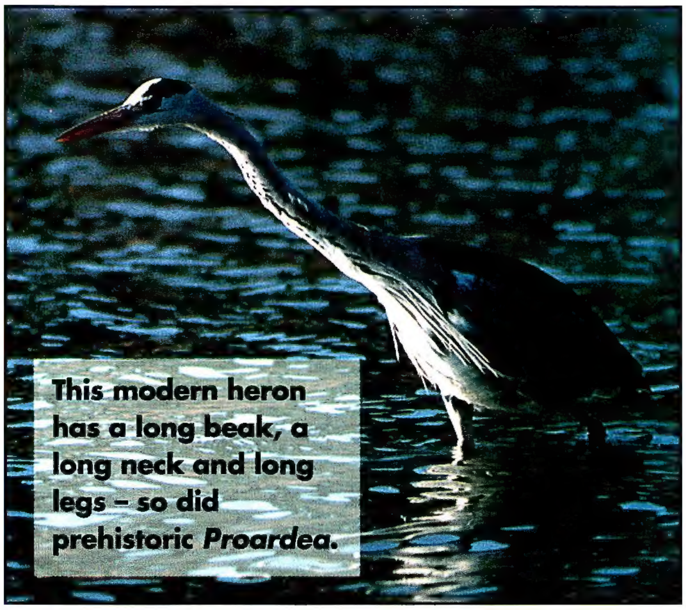
BIRDS ON STILTS

Long-legged birds called waders, like the sandpiper, are a familiar sight on today's beaches. *Presbyornis* was an early wading bird with stilt-like legs and a duck-like head. It lived in Eocene times in the USA and was about 60cm tall. Some experts say it belonged to the wader group. Others think it was a member of one of the many bird groups which have since died out.


Presbyornis **was probably a wader – like this modern sandpiper.**

HIGH RISE HERON

Herons are similar to waders, but belong to a different group of birds. *Proardea* was a prehistoric version of today's heron and grew to be about 70cm tall. Like modern herons, storks and ibises, *Proardea* had a long beak and a long neck, as well as long legs. It lived in the Eocene Epoch and its fossils were found in England.


This modern heron has a long beak, a long neck and long legs – so did prehistoric ***Proardea.***

Today's Andean condor, pictured here, is huge. But prehistoric *Argentavis* was 10 times heavier. Its wingspan was nearly as wide as a football goal.

WHOPPER WINGS

Argentavis lived 5 million years ago. With a wingspan of 7.5m, it probably weighed over 110kg – about the same as today's ostrich.

HEAVIEST FLYER

Prehistoric *Argentavis* was probably 10 times heavier than today's heaviest bird of prey – the Andean condor. The weightiest of all modern flying birds is the Kori bustard which weighs about 17–18kg.

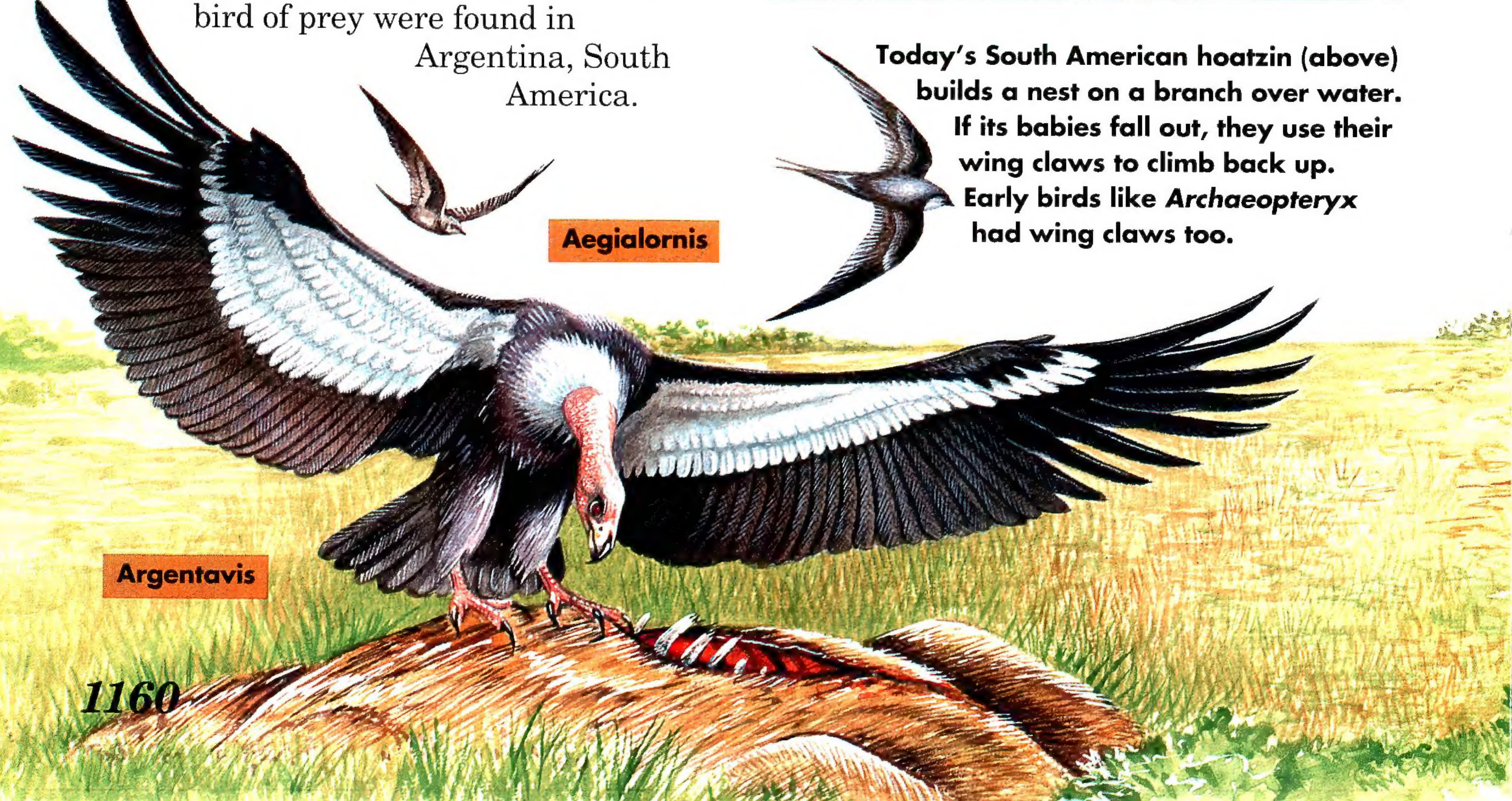
PUZZLING ORIGINS

Today, there are about 155 main groups, or families, of birds. But how they evolved, and which ones are related to each other, is still much of a mystery. This is mainly because bird fossils are very rare. So far, no fossils have been found of the relatives of almost one-third of modern bird families.

MONSTER BIRDS

The biggest-known flying bird of all time was probably the enormous *Argentavis*. The fossils of this vast, vulture-like bird of prey were found in Argentina, South America.

Today's South American hoatzin (above) builds a nest on a branch over water. If its babies fall out, they use their wing claws to climb back up. Early birds like *Archaeopteryx* had wing claws too.



Today's Brazilian toucan (above) has relatives which lived as long ago as 45 million years – like prehistoric *Neanis*.

Is it true that bird fossils are rare?

In most cases, yes. In order to fly, birds have evolved very lightweight bodies. This includes lightweight bones. Many of the bones are fragile, thin and hollow. This means the skeleton of a dead bird is not likely to survive very long. It soon gets crushed and broken, and has little chance of becoming a fossil. So bird fossils are very rare, compared with the fossils of dinosaurs, mammals, fish and other creatures.

FROM BIG TO SMALL

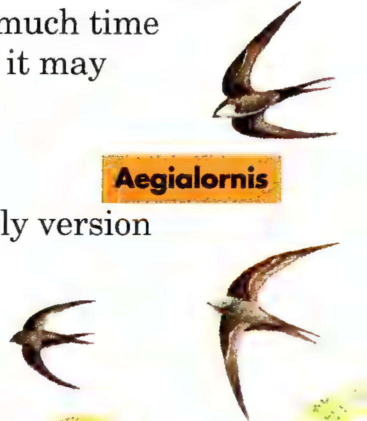
Aegialornis was an early, swift-like bird and much smaller than the monster prehistoric birds! It lived about 30 million years ago in France and had curved, sickle-shaped wings. If it spent as much time in the air as a modern swift, it may even have slept on the wing.

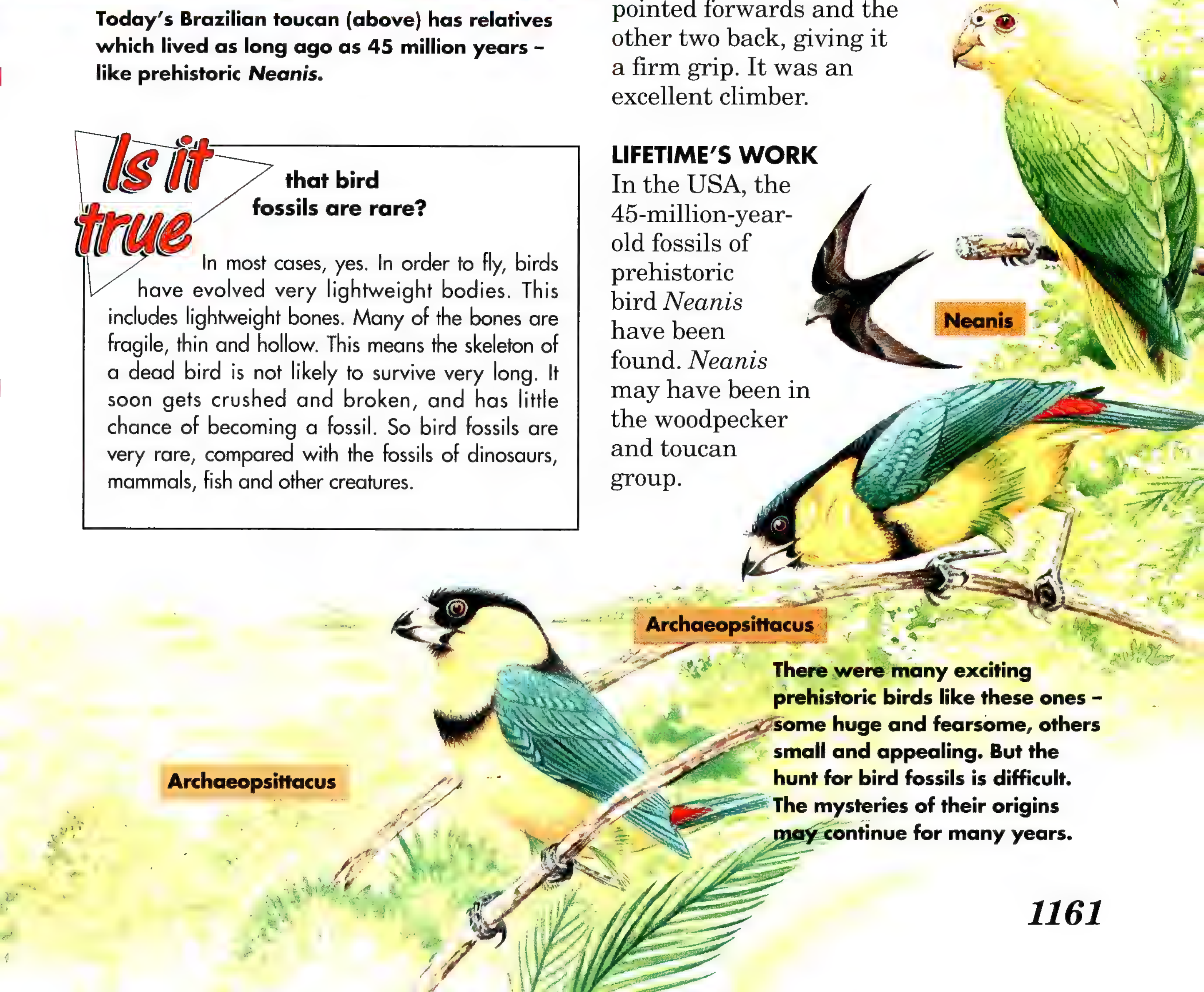
POLLY IMPERSONATOR

Archaeopsittacus was an early version of a parrot. It had a strong, hooked bill and lived in Oligocene times. On each foot, two toes pointed forwards and the other two back, giving it a firm grip. It was an excellent climber.

LIFETIME'S WORK

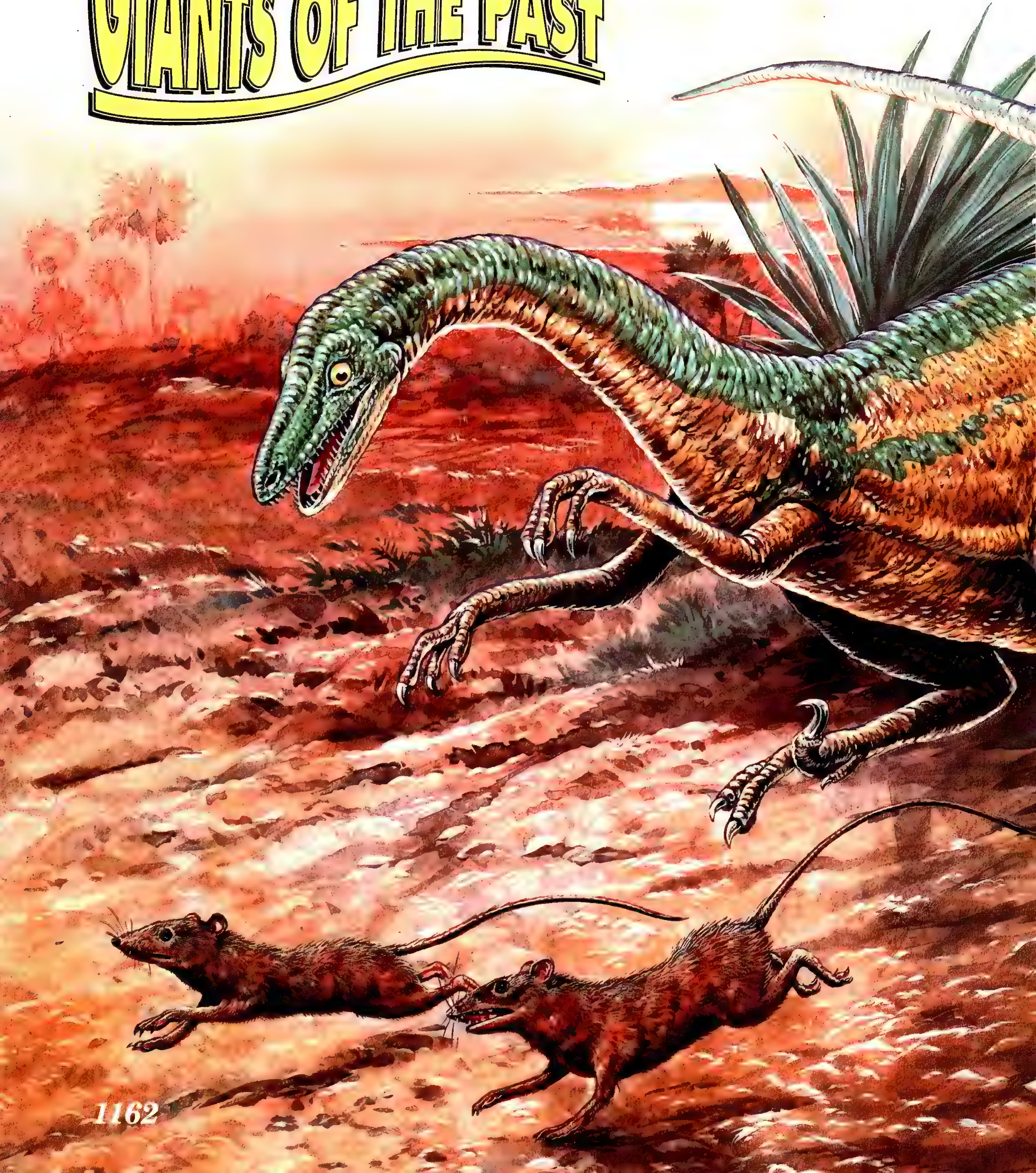
In the USA, the 45-million-year-old fossils of prehistoric bird *Neanis* have been found. *Neanis* may have been in the woodpecker and toucan group.



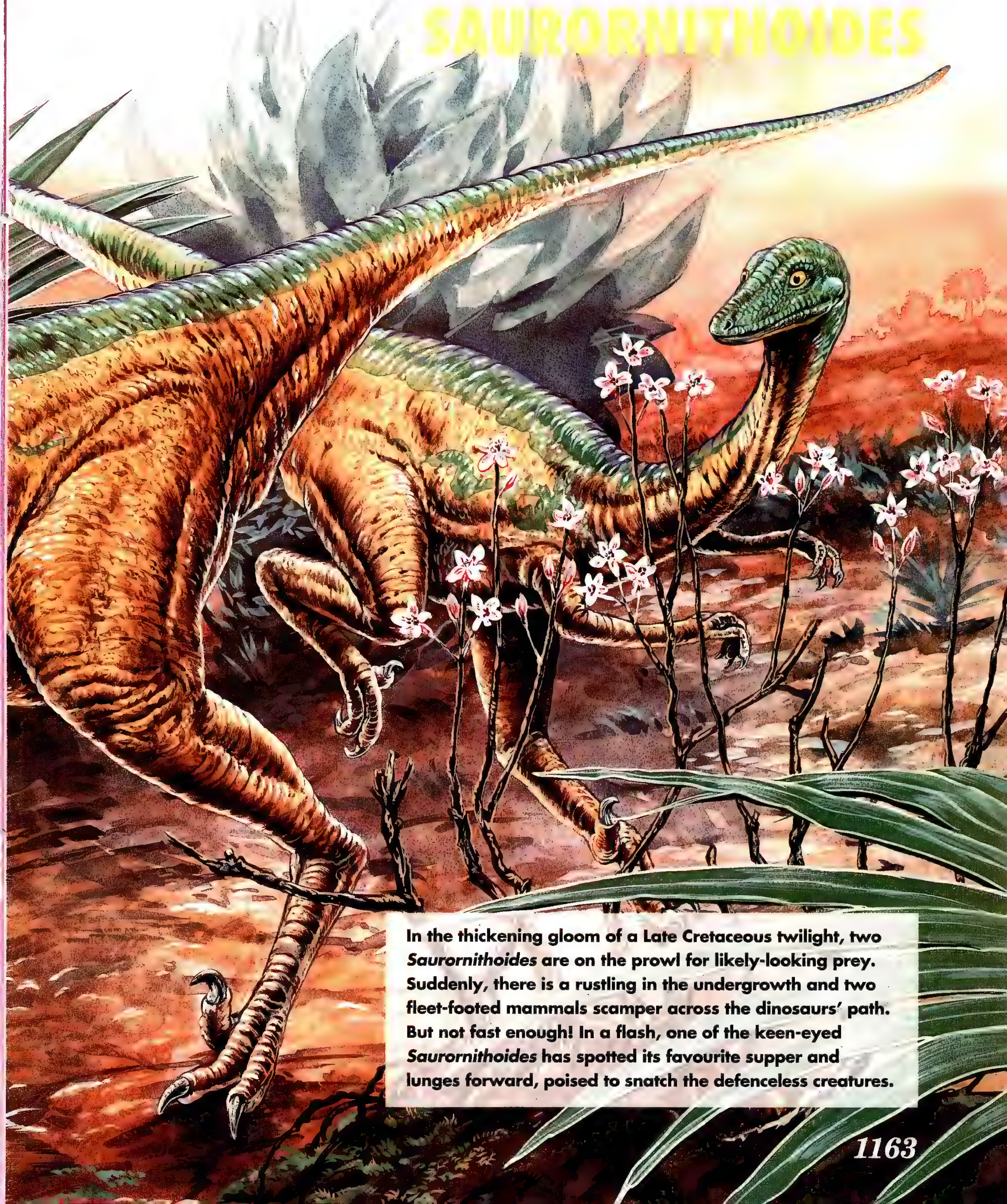


There were many exciting prehistoric birds like these ones – some huge and fearsome, others small and appealing. But the hunt for bird fossils is difficult. The mysteries of their origins may continue for many years.

GIANTS OF THE PAST



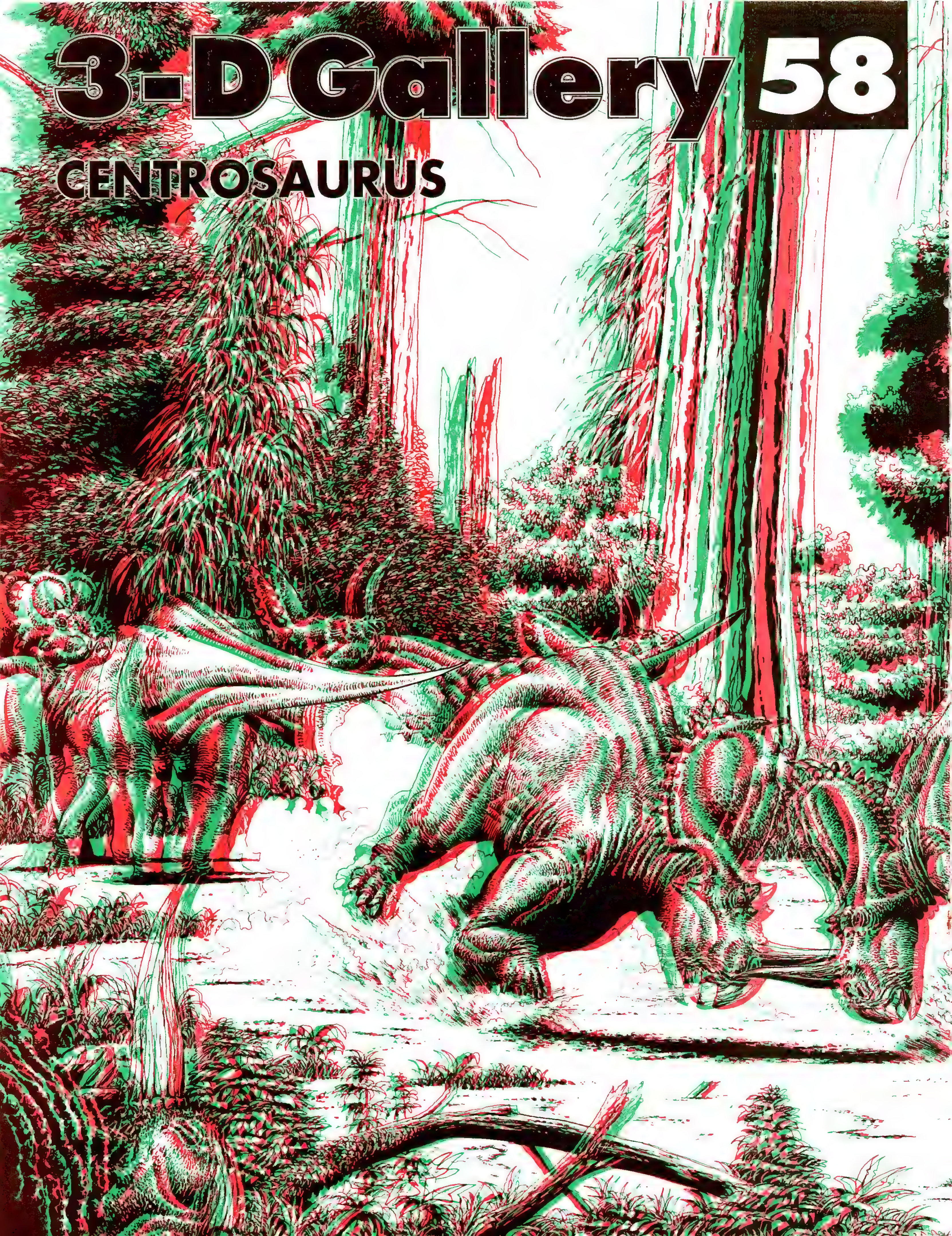
SAURORNITHOIDES

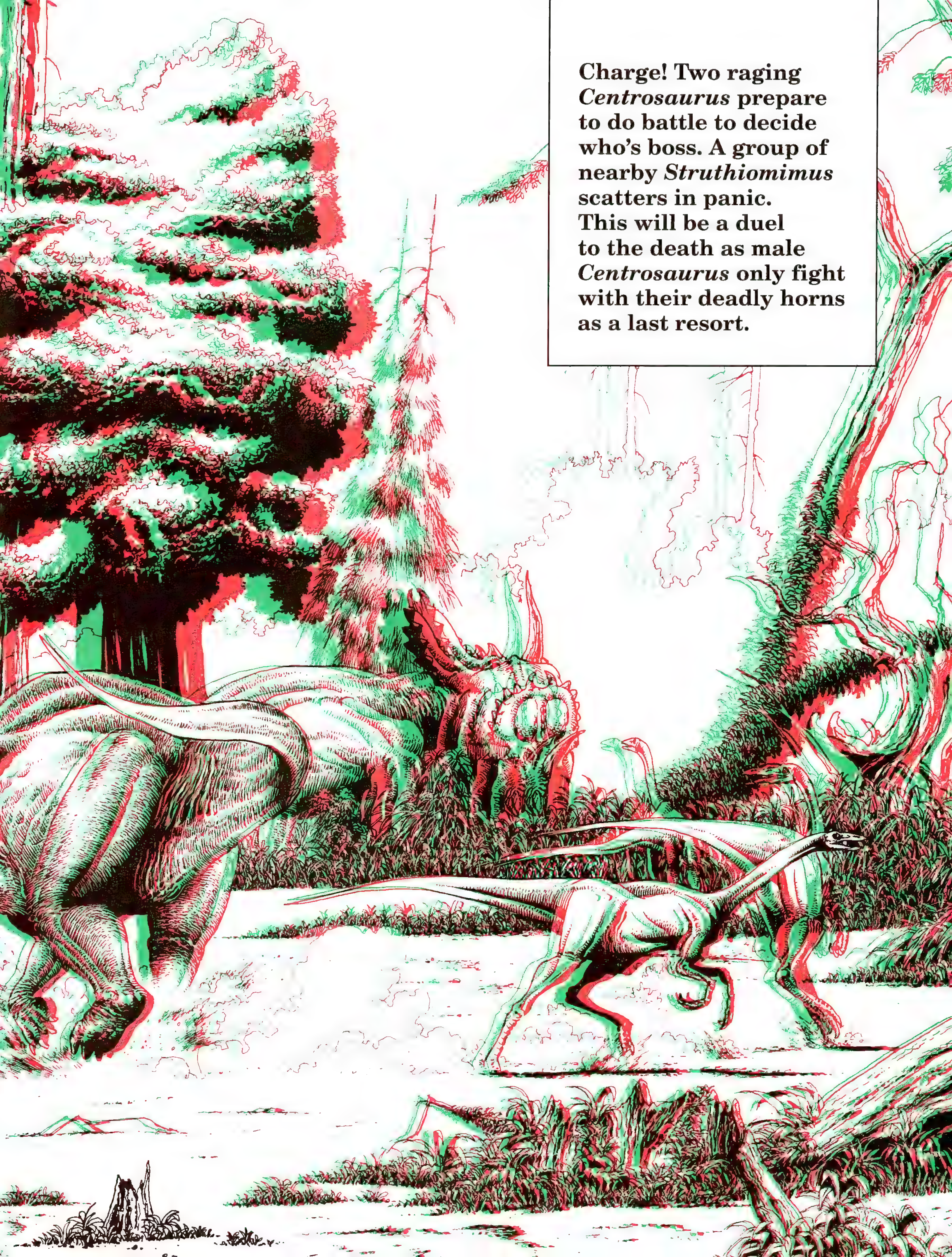


In the thickening gloom of a Late Cretaceous twilight, two *Saurornithoides* are on the prowl for likely-looking prey. Suddenly, there is a rustling in the undergrowth and two fleet-footed mammals scamper across the dinosaurs' path. But not fast enough! In a flash, one of the keen-eyed *Saurornithoides* has spotted its favourite supper and lunges forward, poised to snatch the defenceless creatures.

3-D Gallery 58

CENTROSAURUS



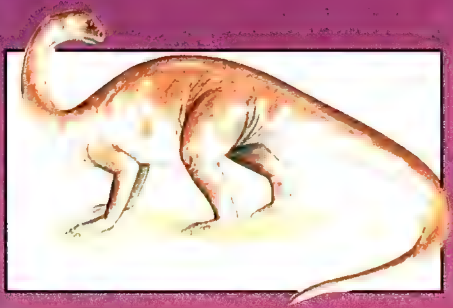


Charge! Two raging *Centrosaurus* prepare to do battle to decide who's boss. A group of nearby *Struthiomimus* scatters in panic. This will be a duel to the death as male *Centrosaurus* only fight with their deadly horns as a last resort.

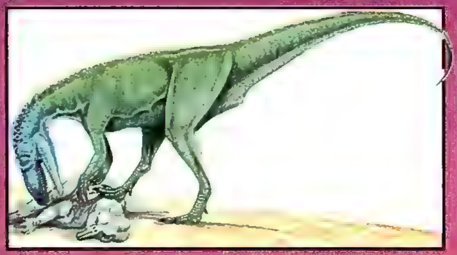
Triassic dinosaurs on parade

Large or small, lumbering or agile, the first dinosaurs were all shapes and sizes. Watch out! Here come the Triassic dinos!

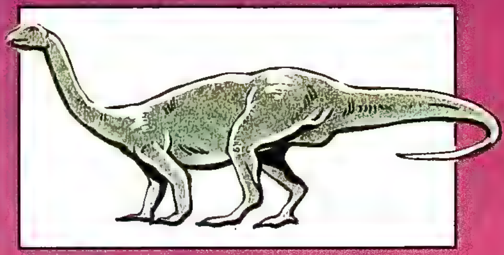
Among the conifers and cycads of Late Triassic times, a variety of dinosaurs roamed the Earth. Check our parade to see which dinosaurs were around when the weather was hot and much of the land was desert.



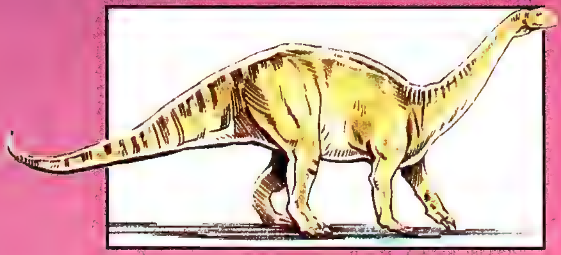
Name: *Coloradisaurus*
Family: Plateosaurid
Size: 4m long
Ate: Plants



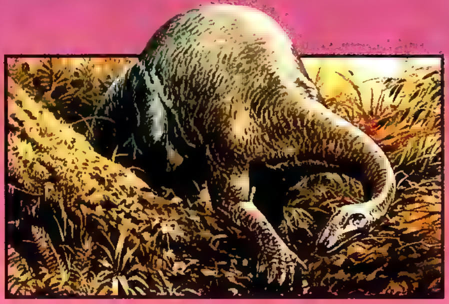
Name: *Herrerasaurus*
Family: Herrerasaurid
Size: 3m long
Ate: Meat



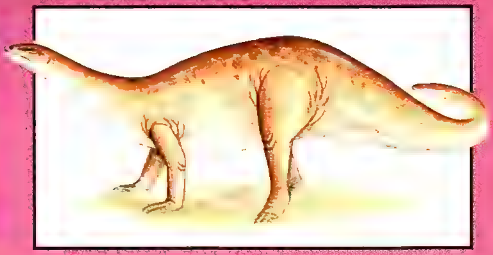
Name: *Lufengosaurus*
Family: Plateosaurid
Size: 6m long
Ate: Plants



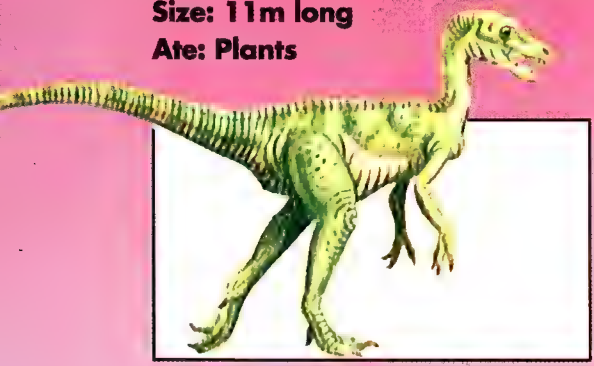
Name: *Melanorosaurus*
Family: Melanorosaurid
Size: 11m long
Ate: Plants



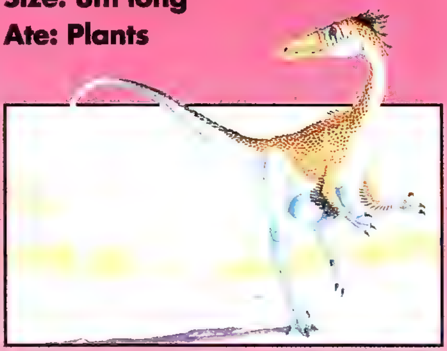
Name: *Plateosaurus*
Family: Plateosaurid
Size: 8m long
Ate: Plants



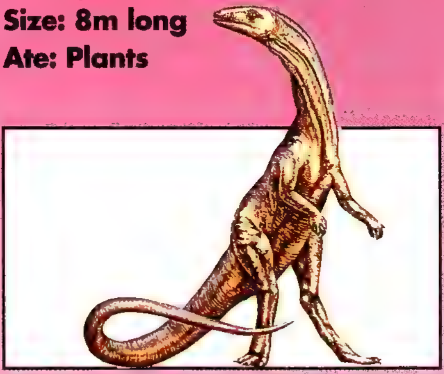
Name: *Euskelosaurus*
Family: Melanorosaurid
Size: 8m long
Ate: Plants



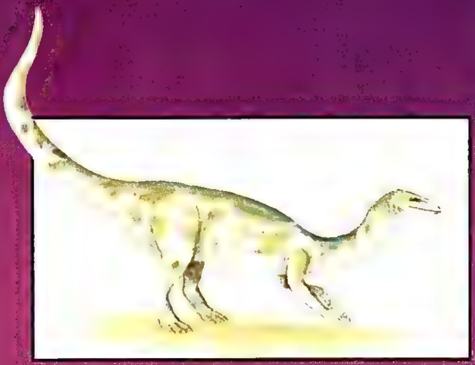
Name: *Eoraptor*
Family: Unknown
Size: 1m long
Ate: Meat



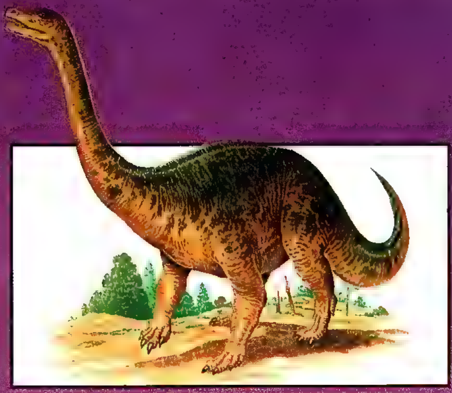
Name: *Syntarsus*
Family: Ceratosaurid
Size: 3m long
Ate: Meat



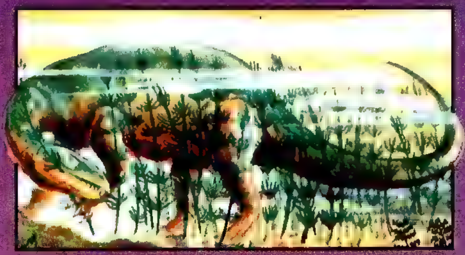
Name: *Coelophysis*
Family: Ceratosaurid
Size: 3m long
Ate: Meat



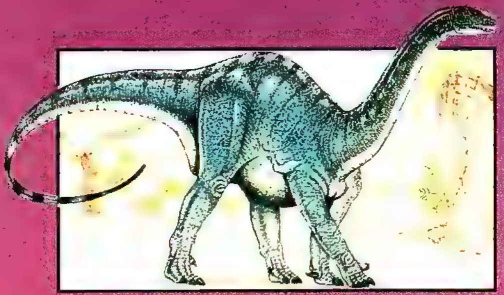
Name: *Yunnanosaurus*
Family: Yunnanosaurid
Size: 8m long
Ate: Plants



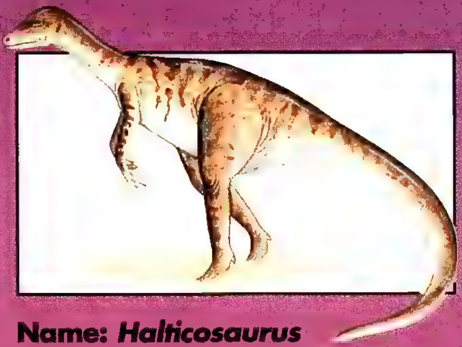
Name: *Riojasaurus*
Family: Melanorosaurid
Size: Up to 11m long
Ate: Plants



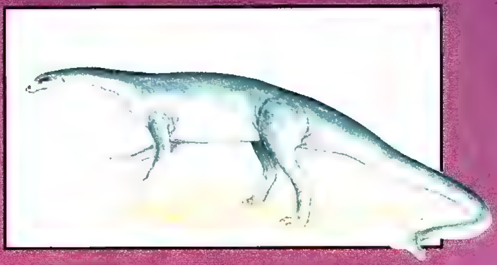
Name: *Anchisaurus*
Family: Anchisaurid
Size: 2 – 3m long
Ate: Plants and meat



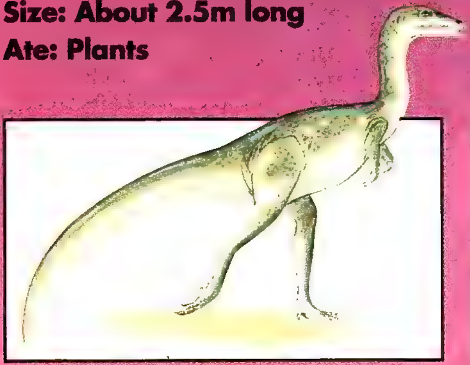
Name: *Mussaurus*
Family: Possibly plateosaurid
Size: About 2.5m long
Ate: Plants



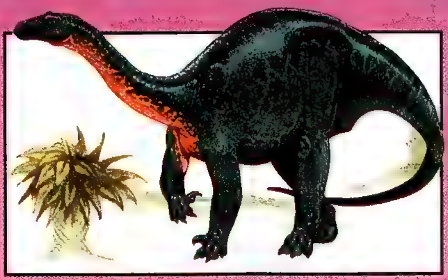
Name: *Halticosaurus*
Family: Unknown
Size: 5 – 6m long
Ate: Meat



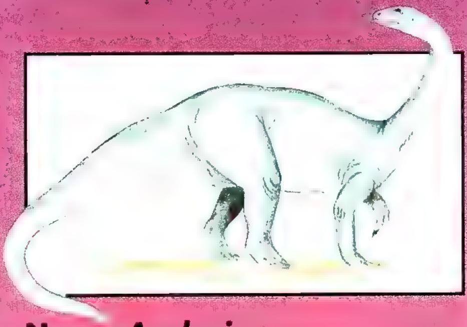
Name: *Sellosaurus*
Family: Plateosaurid
Size: Up to 7m long
Ate: Plants



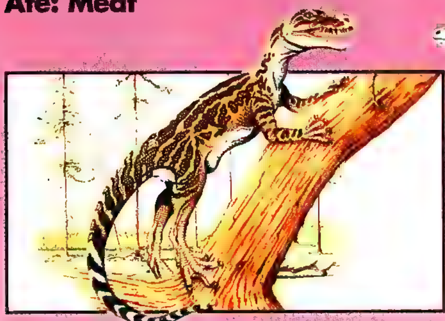
Name: *Procompsognathus*
Family: Ceratosaurid
Size: 60 – 70cm long
Ate: Meat



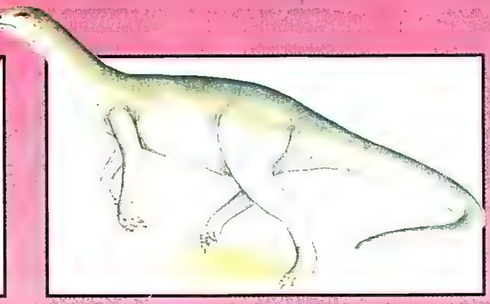
Name: *Blikanasaurus*
Family: Melanorosaurid
Size: 8 – 10m long
Ate: Plants



Name: *Avalonia*
(also known as *Camelotia*)
Family: Melanorosaurid
Size: 5 – 8m long
Ate: Plants



Name: *Staurikosaurus*
Family: Possibly herrerasaurid
Size: 2m long
Ate: Meat



Name: *Azendohsaurus*
Family: Unknown
Size: 1.8m long
Ate: Plants

KEY

TRIASSIC:
245 – 204 million years ago

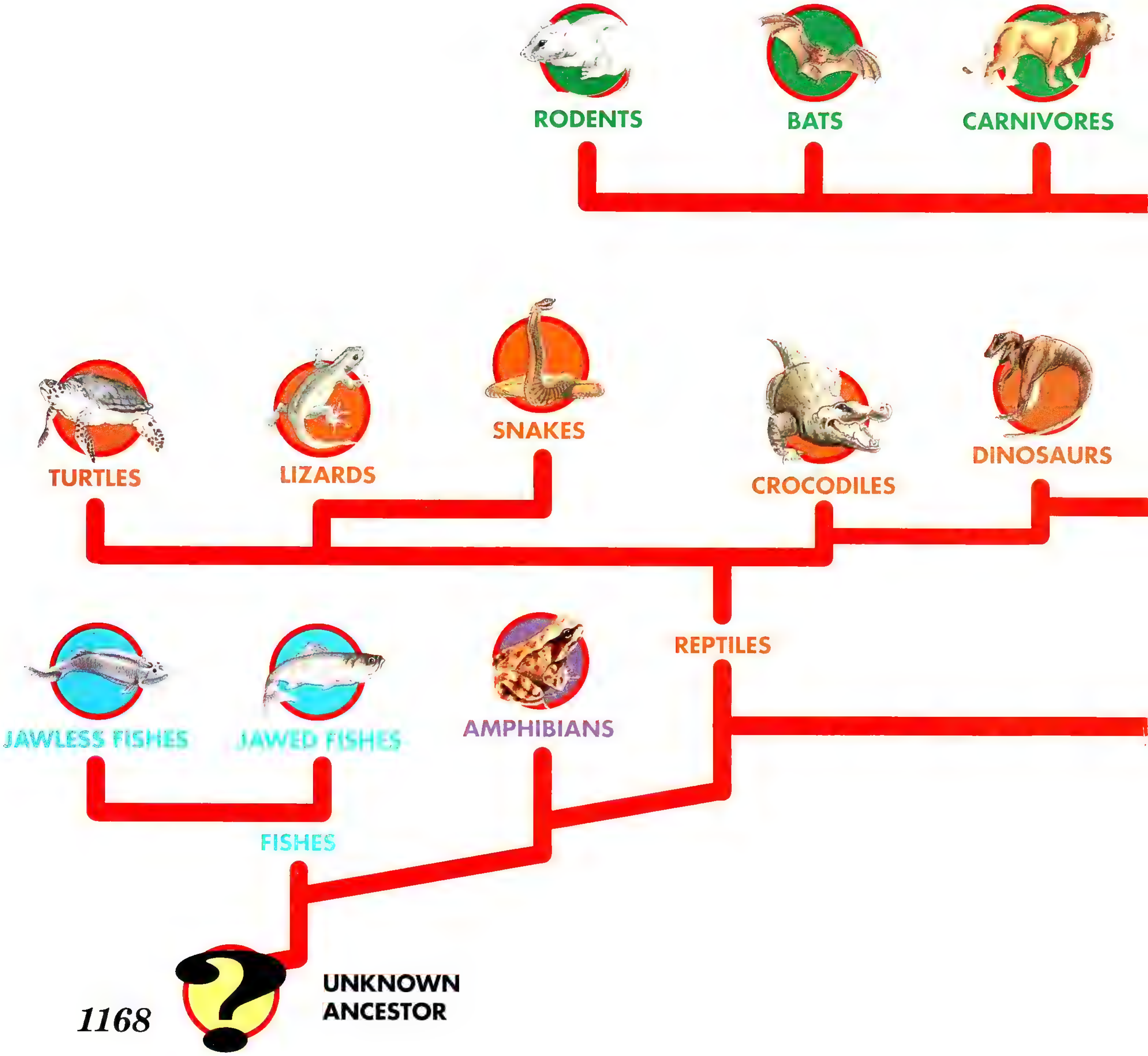
JURASSIC:
204 – 140 million years ago

CRETACEOUS:
140 – 66 million years ago

How vertebrates

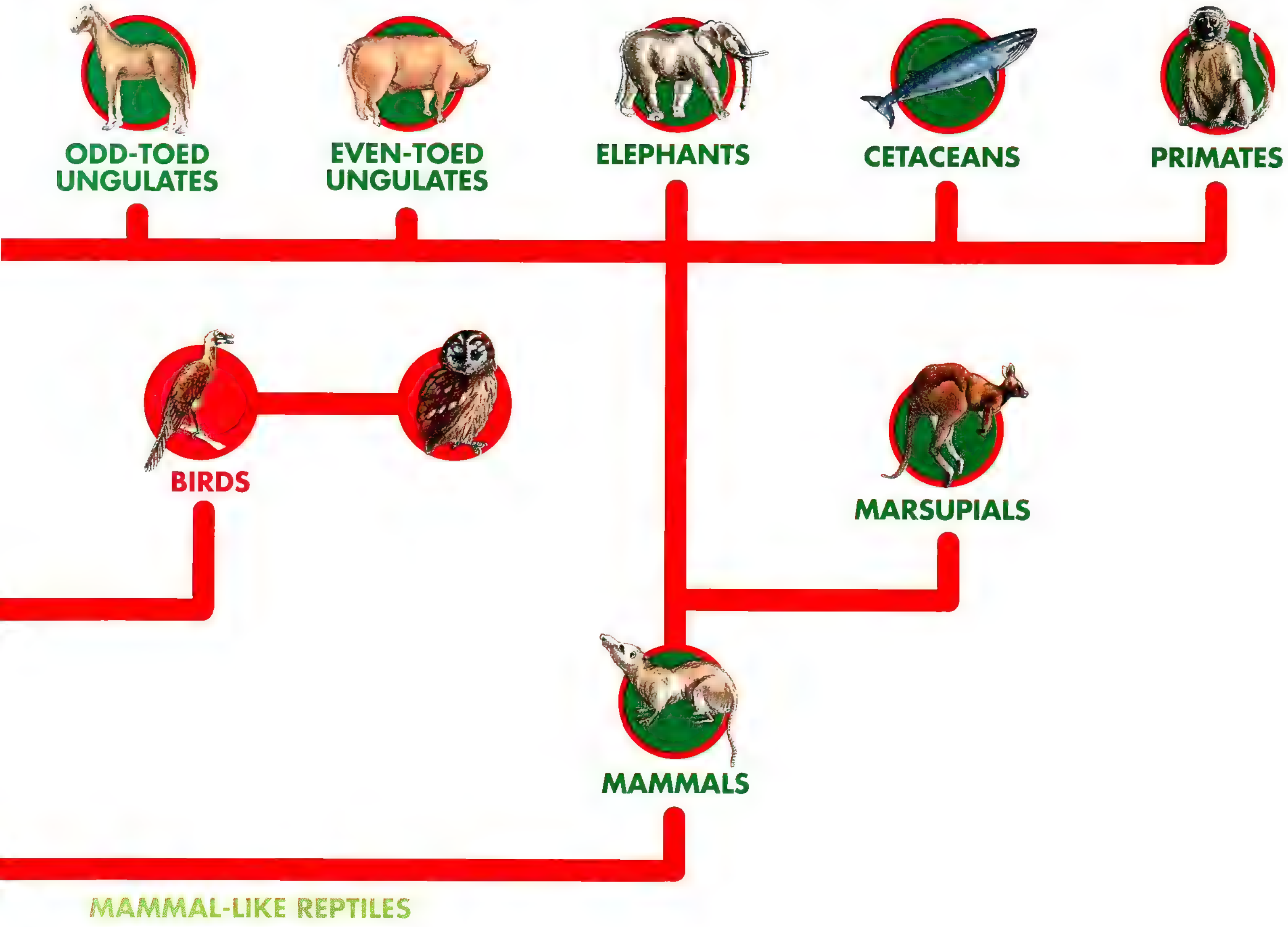
This family tree shows how animals with backbones (vertebrates) evolved. These animals fall into five groups: fishes, amphibians, reptiles (including dinosaurs), birds and mammals.

All vertebrates evolved from the same unknown ancestor. This creature probably lived in the oceans about 530 MYA. The first vertebrates to appear on Earth about 480 MYA were the jawless fishes. About

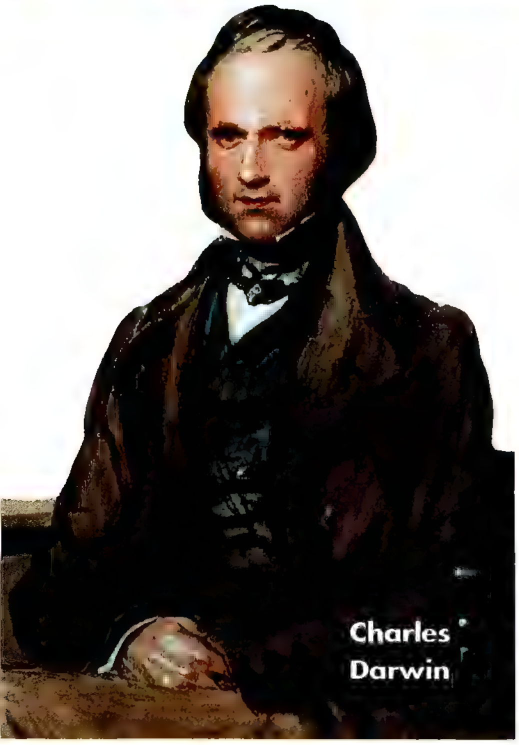


evolved

420 MYA jawed fishes evolved. By about 340 MYA the first amphibians walked on land. Reptiles (including dinosaurs) evolved from the amphibians about 300 MYA. The earliest known birds lived about 150 MYA and may have evolved from dinosaurs. Mammals came from one group of reptiles about 200 MYA. They evolved rapidly and by 54 MYA, there were eight groups including rodents, carnivores, and primates. Humans, who are primates, only appeared about 250,000 years ago.



MYA = MILLION YEARS AGO



Evidence for evolution

Why are some of today's animals so like prehistoric ones? The answer lies in Darwin's theory of evolution.

The British scientist Charles Darwin began making notes about evolution in 1842. However, he knew that before he could announce his theory, he had to have proof that it was true! His ideas were so new and so original that some people would find them hard to believe.

NEW ANIMALS FROM OLD

Darwin thought that thousands of different species of plants and animals could only have appeared after millions of years of evolution. One important piece of evidence for his theory was that the same basic arrangement of bones occurs in many different types of animal. This suggests the animals are related in some way.

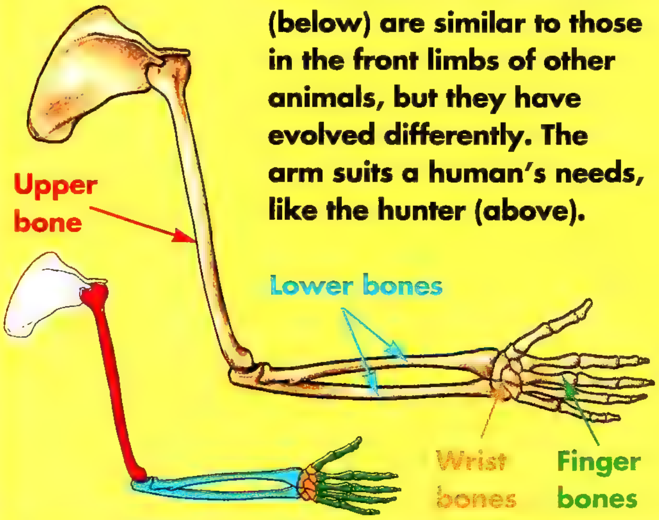
DARWIN WINS THE ARGUMENT

After collecting as much evidence as he could, Darwin published his ideas in 1859 in his famous book 'On the Origin of Species'. There were long arguments about his theory, but eventually most scientists agreed with Darwin.

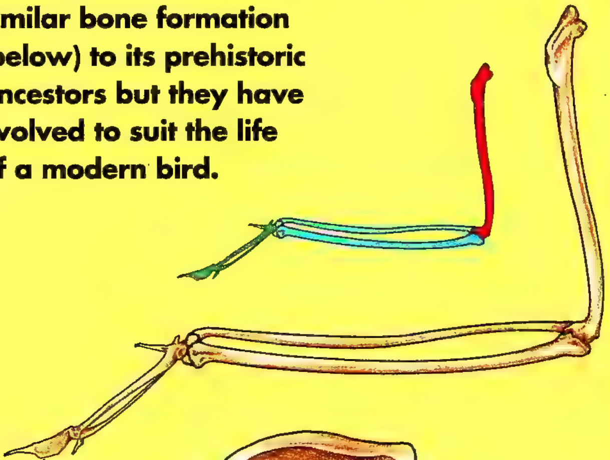
EVOLUTION OF LIMBS

During the past 340 million years, vertebrates (animals with backbones) have evolved into thousands of different forms. Although some species are very different, they share certain characteristics. For example, the front limbs of most animals are made up of the same bone formations as the front limbs of their prehistoric ancestors, although they have evolved into different shapes. Each front limb has a single upper bone, two lower bones, several small wrist bones and long, thin finger bones.

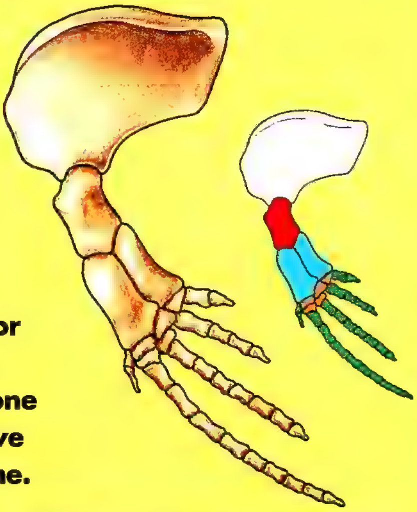
The bones in a human arm (below) are similar to those in the front limbs of other animals, but they have evolved differently. The arm suits a human's needs, like the hunter (above).

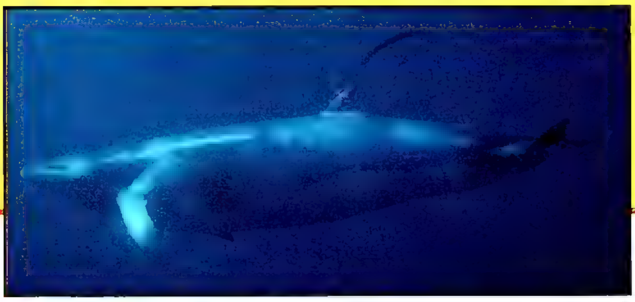


The blue tit's (above) wings are actually feather-covered front limbs. These limbs are made up of a similar bone formation (below) to its prehistoric ancestors but they have evolved to suit the life of a modern bird.



A whale's (below) front limbs, or flippers, may look very different to a human's arms or a bird's wings but the basic bone formation (above right) is the same.





ANTELOPES GALORE!

During evolution, one animal gives rise to many different types of animal. For instance, the first antelope lived about 20 million years ago. Early antelopes were very successful survivors and changed into different forms, depending on where and how they lived. Today, there are over 100 antelopes and related species. Most of them live in Africa on open grassland.

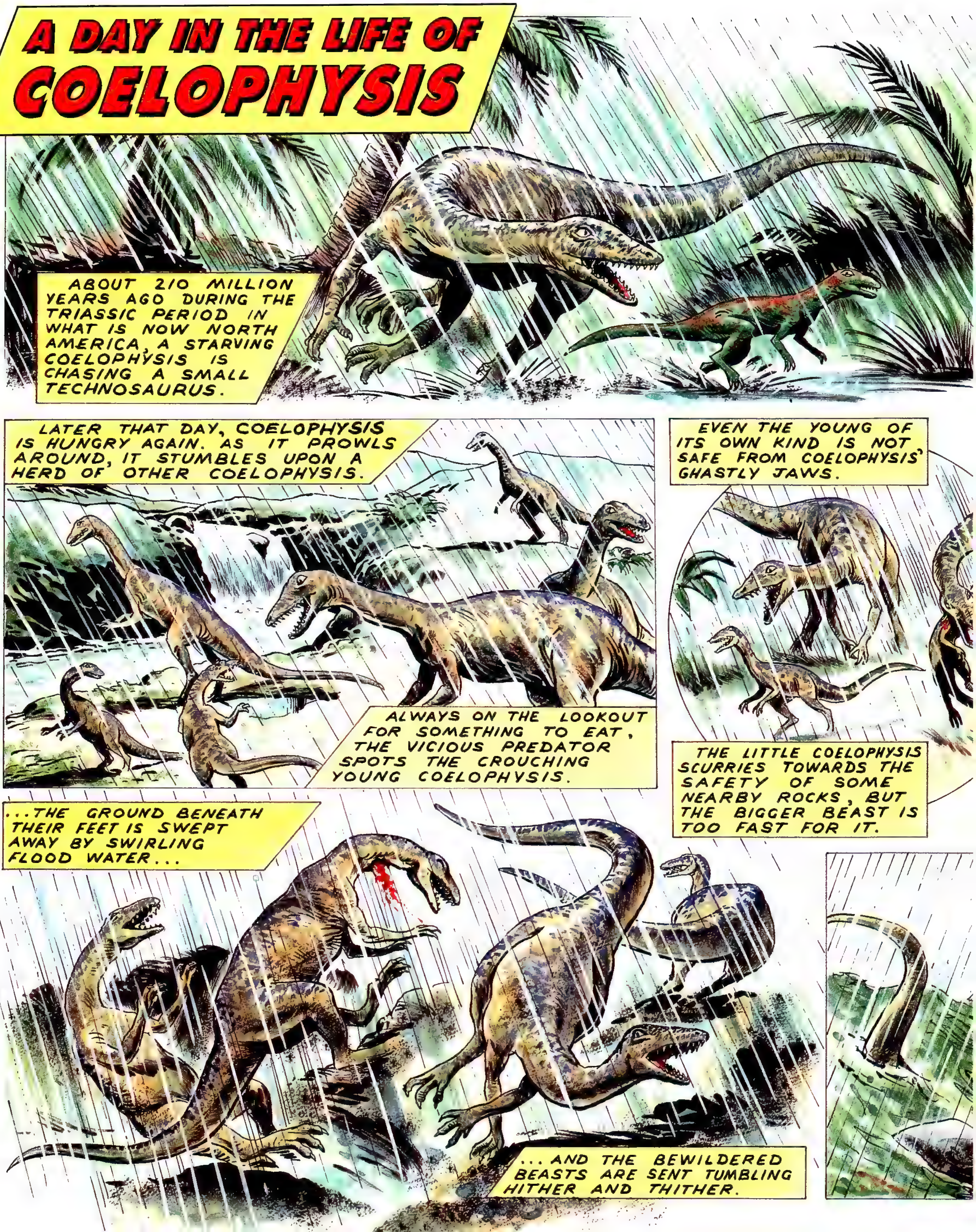
The impala (above) lives in herds of up to 200. It can leap over 3m-high barriers.

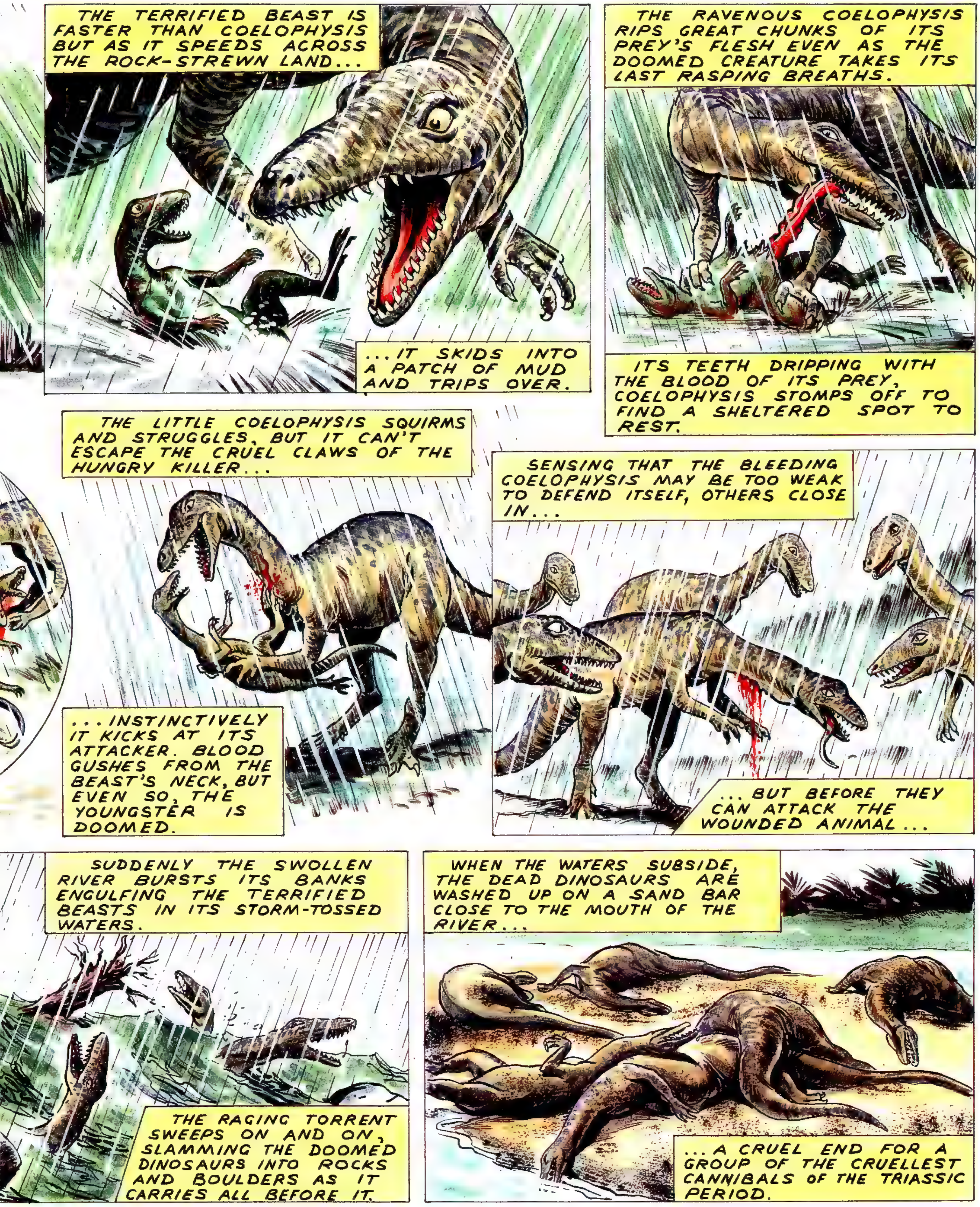
The kudu (right) is about 2.5m long. It lives in groups of about 10 and often steals crops from farms during the night.

What is? A SPECIES

A species is a group of animals with the same, distinct characteristics. Members of a species usually mate with each other but not with members of a different species. For example, blackbirds are one kind or species of bird and robins are a different species. So you won't find a robin and a blackbird building a nest together!

A DAY IN THE LIFE OF COELOPHYSIS


ABOUT 210 MILLION YEARS AGO DURING THE TRIASSIC PERIOD IN WHAT IS NOW NORTH AMERICA, A STARVING COELOPHYSIS IS CHASING A SMALL TECHNOSAURUS.
LATER THAT DAY, COELOPHYSIS IS HUNGRY AGAIN. AS IT PROWLS AROUND, IT STUMBLES UPON A HERD OF OTHER COELOPHYSIS.
ALWAYS ON THE LOOKOUT FOR SOMETHING TO EAT, THE VICIOUS PREDATOR SPOTS THE CROUCHING YOUNG COELOPHYSIS.
EVEN THE YOUNG OF ITS OWN KIND IS NOT SAFE FROM COELOPHYSIS' GHASTLY JAWS.
THE LITTLE COELOPHYSIS SCURRIES TOWARDS THE SAFETY OF SOME NEARBY ROCKS, BUT THE BIGGER BEAST IS TOO FAST FOR IT.
...THE GROUND BENEATH THEIR FEET IS SWEPT AWAY BY SWIRLING FLOOD WATER...
...AND THE BEWILDERED BEASTS ARE SENT TUMBLING HITHER AND THITHER.


THE TERRIFIED BEAST IS FASTER THAN COELOPHYSIS BUT AS IT SPEEDS ACROSS THE ROCK-STREWN LAND...
...IT SKIDS INTO A PATCH OF MUD AND TRIPS OVER.
THE RAVENOUS COELOPHYSIS RIPS GREAT CHUNKS OF ITS PREY'S FLESH EVEN AS THE DOOMED CREATURE TAKES ITS LAST RASPING BREATHS.
ITS TEETH DRIPPING WITH THE BLOOD OF ITS PREY, COELOPHYSIS STOMPS OFF TO FIND A SHELTERED SPOT TO REST.
THE LITTLE COELOPHYSIS SQUIRMS AND STRUGGLES, BUT IT CAN'T ESCAPE THE CRUEL CLAWS OF THE HUNGRY KILLER...
...INSTINCTIVELY IT KICKS AT ITS ATTACKER. BLOOD GUSHES FROM THE BEAST'S NECK, BUT EVEN SO, THE YOUNGSTER IS DOOMED.
SENSING THAT THE BLEEDING COELOPHYSIS MAY BE TOO WEAK TO DEFEND ITSELF, OTHERS CLOSE IN...
...BUT BEFORE THEY CAN ATTACK THE WOUNDED ANIMAL...
SUDDENLY THE SWOLLEN RIVER BURSTS ITS BANKS ENGULFING THE TERRIFIED BEASTS IN ITS STORM-TOSSED WATERS.
THE RAGING TORRENT SWEEPS ON AND ON, SLAMMING THE DOOMED DINOSAURS INTO ROCKS AND BOULDERS AS IT CARRIES ALL BEFORE IT.
WHEN THE WATERS SUBSIDE, THE DEAD DINOSAURS ARE WASHED UP ON A SAND BAR CLOSE TO THE MOUTH OF THE RIVER...
...A CRUEL END FOR A GROUP OF THE CRUELLEST CANNIBALS OF THE TRIASSIC PERIOD.

Improve and test your knowledge with...

FACT FILE

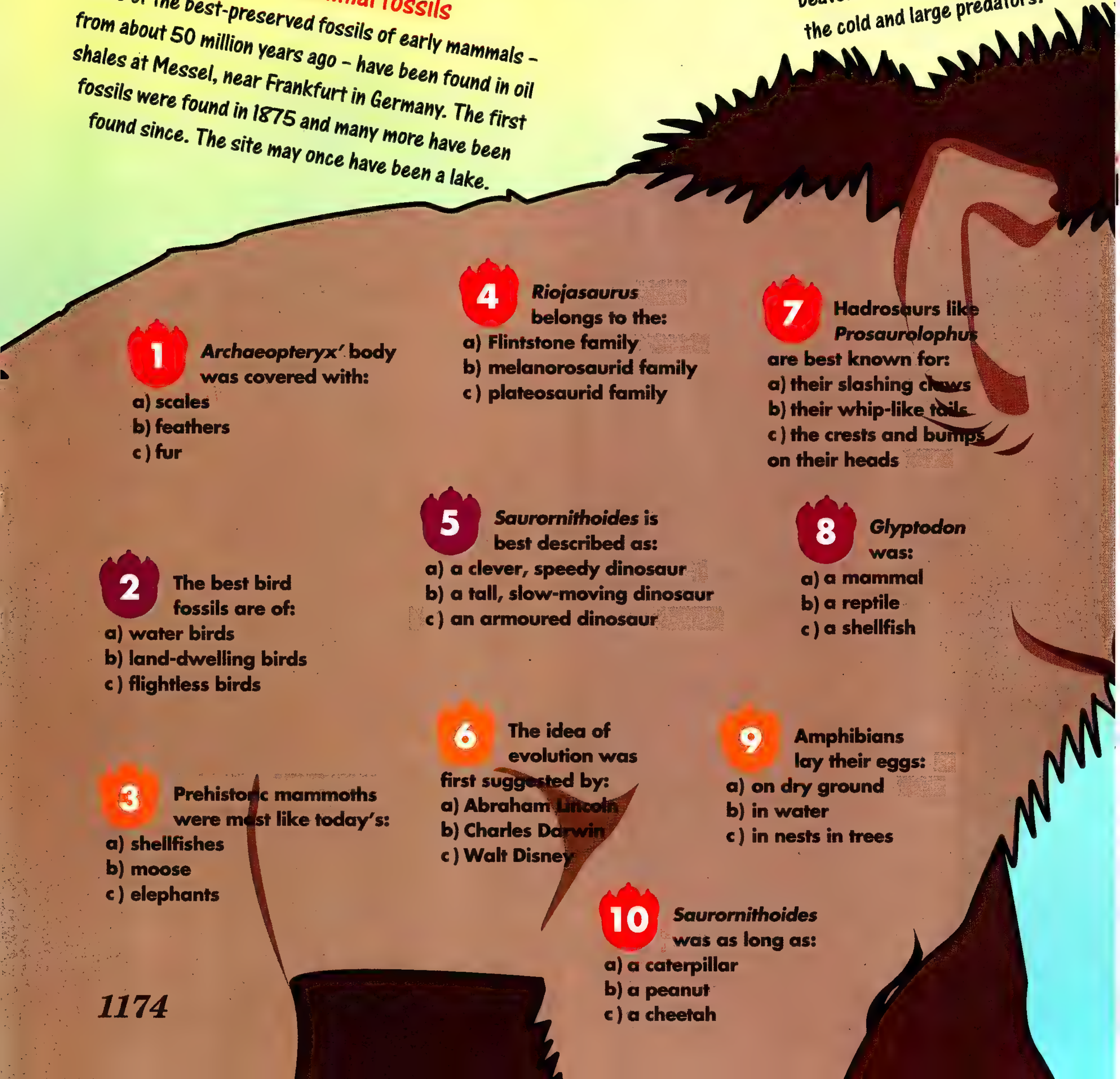
Follow the footprints to complete the quiz and get to the bottom of the question!

Top-notch mammal fossils

Some of the best-preserved fossils of early mammals – from about 50 million years ago – have been found in oil shales at Messel, near Frankfurt in Germany. The first fossils were found in 1875 and many more have been found since. The site may once have been a lake.

Amazing mazes!

For many years, experts were puzzled by the discovery of strange, corkscrew-shaped holes in the ground in mid-western US A. In the 1970s, studies finally revealed they were the burrows of Palaeocastor, a prehistoric beaver. The burrows kept out the cold and large predators!



1 *Archaeopteryx'* body was covered with:
a) scales
b) feathers
c) fur

2 The best bird fossils are of:
a) water birds
b) land-dwelling birds
c) flightless birds

3 Prehistoric mammoths were most like today's:
a) shellfishes
b) moose
c) elephants

4 *Riojasaurus* belongs to the:
a) Flintstone family
b) melanorosaurid family
c) plateosaurid family

5 *Saurornithoides* is best described as:
a) a clever, speedy dinosaur
b) a tall, slow-moving dinosaur
c) an armoured dinosaur

6 The idea of evolution was first suggested by:
a) Abraham Lincoln
b) Charles Darwin
c) Walt Disney

7 Hadrosaurs like *Prosaurolophus* are best known for:
a) their slashing claws
b) their whip-like tails
c) the crests and bumps on their heads

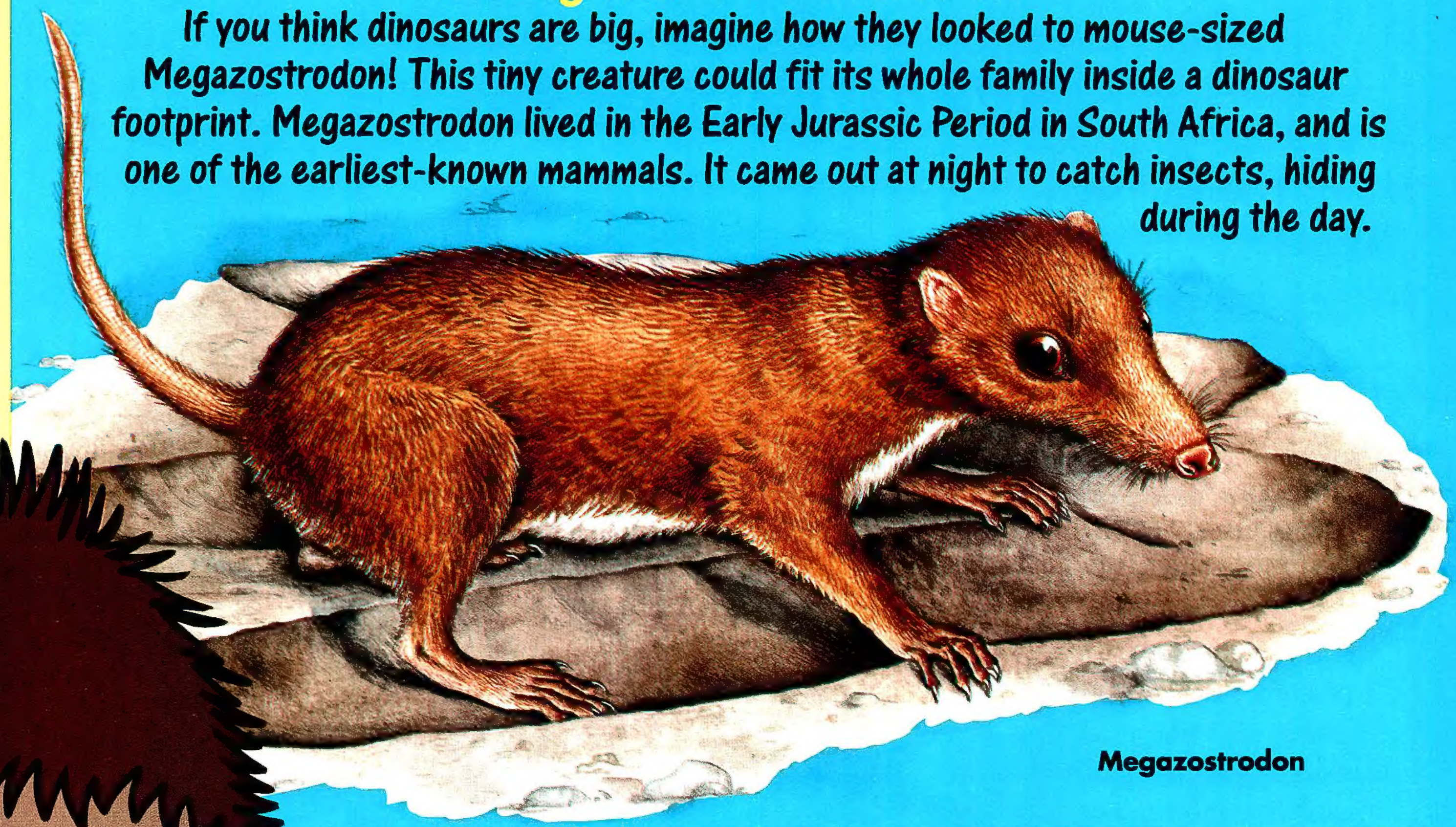
8 *Glyptodon* was:
a) a mammal
b) a reptile
c) a shellfish

9 Amphibians lay their eggs:
a) on dry ground
b) in water
c) in nests in trees

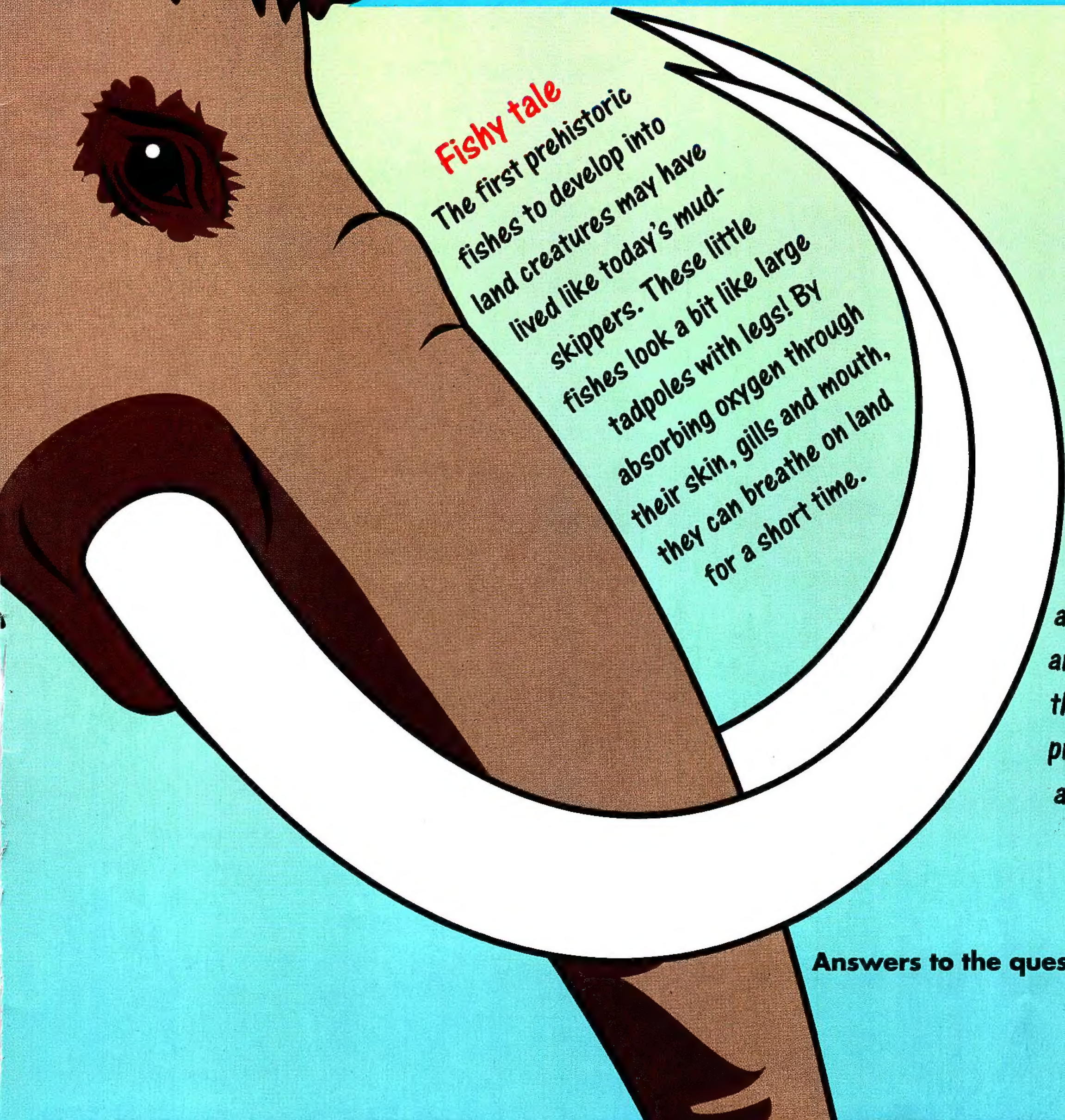
10 *Saurornithoides* was as long as:
a) a caterpillar
b) a peanut
c) a cheetah

The big and the small of it!

If you think dinosaurs are big, imagine how they looked to mouse-sized Megazostrodon! This tiny creature could fit its whole family inside a dinosaur footprint. Megazostrodon lived in the Early Jurassic Period in South Africa, and is one of the earliest-known mammals. It came out at night to catch insects, hiding during the day.



Megazostrodon



Fishy tale

The first prehistoric fishes to develop into land creatures may have lived like today's mudskippers. These little fishes look a bit like large tadpoles with legs! By absorbing oxygen through their skin, gills and mouth, they can breathe on land for a short time.

A chilly end!

There are several different theories about why dinosaurs became extinct. According to a recent theory – the Pele Hypothesis – the dinosaurs thrived when the Earth's temperature was kept very warm. The heat was due to a great amount of volcanic activity which provided high levels of oxygen. When the activity dropped, temperatures and oxygen levels got lower and the dinosaurs couldn't breathe properly. The theory is named after the Polynesian volcano goddess, Pele.

Answers to the questions on inside back cover

TROODON 75 MYA

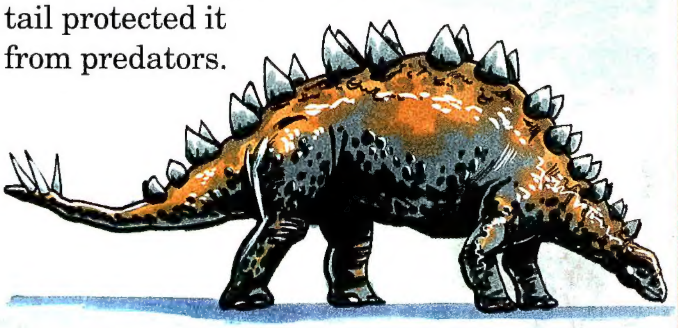
A speedy, intelligent dinosaur, *Troodon* (troo-o-don) hunted small mammals and lizards or weak dinosaurs. With its keen eyesight, *Troodon* could spot prey far off in the distance, even in the dark. Fossils of this dinosaur were found in Canada near the nesting sites of *Orodromeus,* so experts think it probably raided nests for young dinosaurs. *Troodon* was about as long as a cheetah and ran on two thin legs. Its name means ‘wounding tooth’.

TSINTAOSAURUS 70 MYA

Tsintaosaurus (sin-tow-saw-rus) was found in Shandong Province, China. Duckbilled *Tsintaosaurus* lived in the Late Cretaceous Period and was a plant-eater. It was as long as an elephant and as tall as a two-storey building. *Tsintaosaurus* ground up vegetation with banks of teeth on either side of its mouth. For many years, experts thought that *Tsintaosaurus* had a spike-like crest on its head. However, recent research has proved that it did not. Its name means ‘reptile from Tsintao’.

TUOJIANGOSAURUS 150 MYA

Plant-eating *Tuojiangosaurus* (too-oh-yang-oh-saw-rus) or ‘Tuojing reptile’ was from China. It had pairs of triangular plates on its back which may have helped to regulate its body temperature. *Tuojiangosaurus*’ spiky tail protected it from predators.

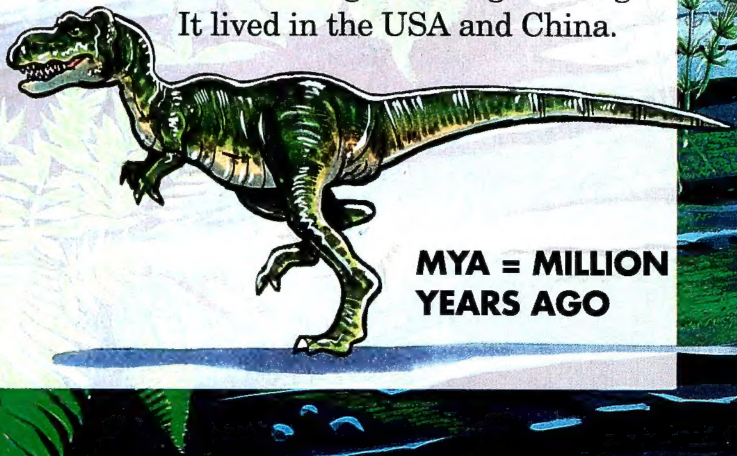


TYLOCEPHALE 75 MYA

As long as a small car, *Tylocephale* (tie-low-sef-al-ee) was a plant-eating dinosaur from Mongolia. Its name means ‘swollen head’ and describes its thick-domed, sloping skull. The rim of its skull was edged with bony knobs.

TYRANNOSAURUS REX 67 MYA

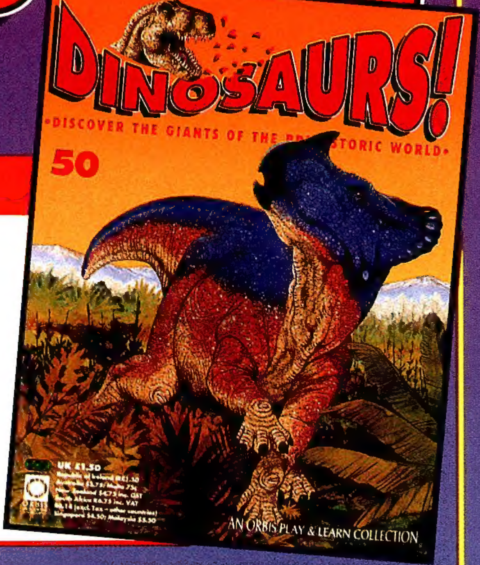
Tyrannosaurus rex or ‘king of the tyrant reptiles’ was as long as four cars and as tall as a giraffe. A vicious monster, *T rex* gripped its prey in its huge jaws. It had tiny arms and strode along on strong back legs. It lived in the USA and China.



MYA = MILLION YEARS AGO

COMING IN PART 50 OF

DINOSAURS!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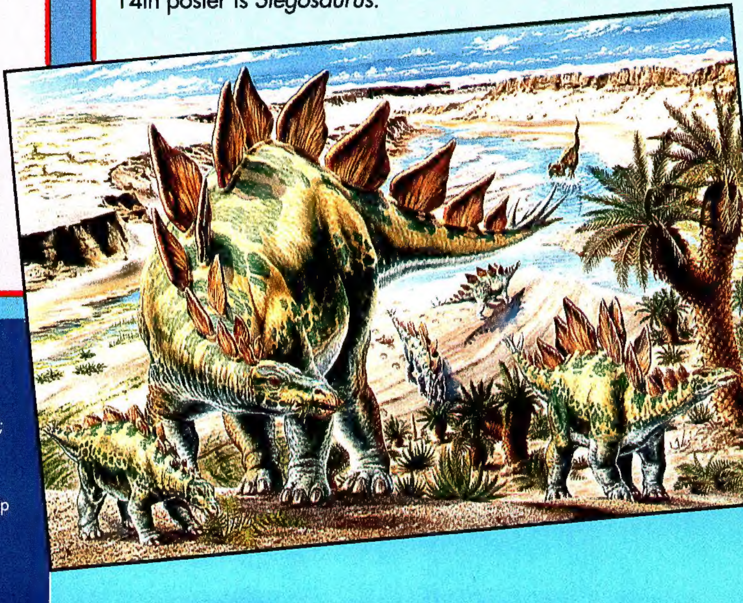
Have you ever wanted to fill your room with dinosaurs? Now you have your chance – with the *Dinosaurs!* POSTER COLLECTION. Each poster is 820 x 570mm (nearly eight times the size of this page) and features a superb dinosaur artwork. You'll find facts and figures about the dinosaur on the back – PLUS a look at some other prehistoric animals. The 14th poster is *Stegosaurus*.



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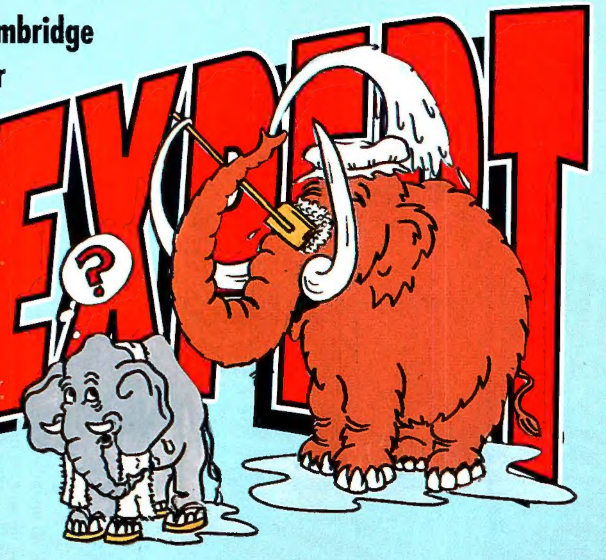
Spotter's Guide: Black Hat, Robin Bouttell, Wayne Ford/WLAA, John Francis, Una Fricker, Philip Hood/WLAA, Tony Jackson, Neil Lloyd, Graham Rosewarne

ANSWERS TO FACT FILE QUESTIONS: 1.b 2.a 3.c 4.b 5.a 6.b 7.c 8.a 9.b 10.c

Dr. David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT



What was the biggest sea reptile at the time when dinosaurs existed?

We don't know for sure. Some of the largest certainly included the giant pliosaurs like *Kronosaurus*, a 14m-long sea monster from Australia. It lived during the Late Cretaceous. Bigger still were some of the ichthyosaurs such as *Shonisaurus,* which reached lengths of 15m in Late Triassic times, in America.

Did dinosaurs with big noses have a better sense of smell?

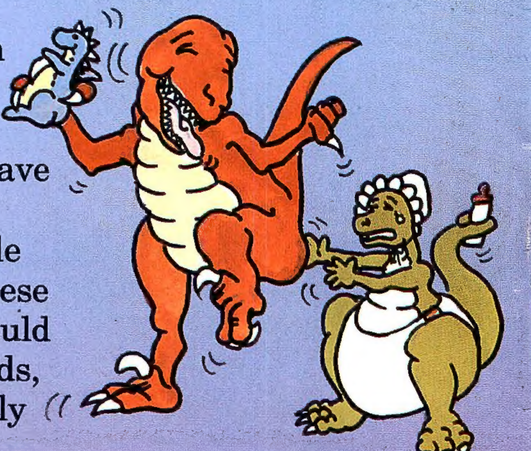
Some experts do think dinosaurs with big noses, such as the hadrosaurs and duckbilled dinosaurs of the Late Cretaceous, had a better sense of smell. But big noses might have had another use. Large dinosaurs may have used the lining of their noses to help cool the blood in their bodies as they breathed out.

Are there any prehistoric animals still alive today?

Modern elephants are so similar to the mammoths of the last Ice Age that it must almost seem as though elephants are prehistoric. But no! Any animal alive today cannot be prehistoric because it did not live before human history began and because it is still with us today! But several animals alive today have close prehistoric relatives. Many shellfishes are very like prehistoric ones, and some fishes and reptiles have prehistoric ancestors too.

Was Utahraptor the meanest of all raptors?

The fossil fragments of *Utahraptor* that have been found suggest it was 8m long. If this is true, then it certainly would have been a fearsome beast! Some people think a pack of these huge predators could kill large sauropods, which are normally thought to have been almost immune to attack.



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